FM23 AC, FM24 AB, FM33 AA

Service
Service
Service

Service Manual

Contents **Page**

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PHILIPS

1. Technical Specifications, Connections and Chassis Overview

Index of this chapter:

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

1.1 Technical Specifications

1.1.1 Picture

Display	:	FHT plasma panel
Screen sizes	:	32-inch (82 cm)
	:	37-inch (94 cm)
	:	42-inch (107 cm)
Resolution (pixels)	:	852(*3)x1024 (32")
	:	1024(*3)x1024 (37")
	:	1024(*3)x1024 (42")
Contrast ratio	:	400 : 1
Light output	:	600 cd/m^2
Viewing angle	:	160 deg (H)
	:	160 deg (V)

1.1.2 Sound

Maximum power	:	30 W_rms

1.1.3 Miscellaneous

Mains voltage	:	95 - 264 V
Mains frequency	:	50 / 60 Hz
Ambient temperature	:	+ 5 to + 40 deg. C
Maximum humidity	:	90 % R.H.
Power dissipation	:	≈ 280 W (32")
	:	≈ 300 W (37")
	:	≈ 380 W (42")
Standby Power dissipation	:	< 3 W
Weight	:	24 kg (32-inch)
	:	30 kg (37-inch)
	:	36 kg (42-inch)
Dimens. (WxHxD) in mm	:	964x512x89 (32")
	:	1060x580x90 (37")
	:	1210x660x90 (42")

1.2 Connections

1.2.1 Rear Connections

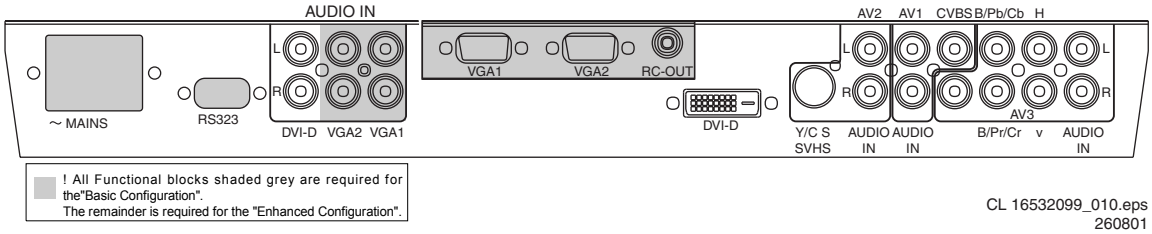


Figure 1-1 Rear View

RS232

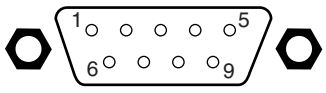


Figure 1-2 RS232 Connector

1	-		
2	- TXD	(UART)	⊖→
3	- RXD	(UART)	⊖
4	- RL_ICN	(ICONN)	⊖
5	-	Ground	⏚
6	- GL_ICN	(ICONN)	⊖→
7	- LD_ICN	(ICONN)	⊖→
8	- IR_TX	(ICONN)	⊖→
9	- IR_RX	(ICONN)	⊖
10	-	Ground	⏚
11	-	Ground	⏚

Audio - In (DVI-D) *

-	- Audio - L	0.5 V_rms / 1 kohm	⊖◎
-	- Audio - R	0.5 V_rms / 1 kohm	⊖◎

Audio - In (VGA2)

-	- Audio - L	0.5 V_rms / 1 kohm	⊖◎
-	- Audio - R	0.5 V_rms / 1 kohm	⊖◎

Audio - In (VGA1)

-	- Audio - L	0.5 V_rms / 1 kohm	⊖◎
-	- Audio - R	0.5 V_rms / 1 kohm	⊖◎

VGA1 - In

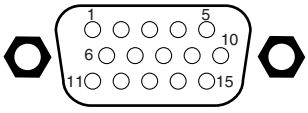


Figure 1-3 VGA Connector

1	- Red	0.7 V_pp / 75 ohm	⊖
2	- Green	0.7 V_pp / 75 ohm	⊖
3	- Blue	0.7 V_pp / 75 ohm	⊖
4	- TXD		⊖→
5	-	Ground	⏚
6	- Red	Ground	⏚
7	- Green	Ground	⏚
8	- Blue	Ground	⏚
9	- RC		⊖→
10	-	Ground	⏚
11	- RXD		⊖
12	- DDC_SDA		⊖
13	- H-sync	0 - 5 V	⊖
14	- V-sync	0 - 5 V	⊖

15 - DDC_SCL

VGA2 - Out

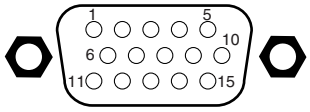


Figure 1-4 VGA Connector

1 - Red	(0.7 V_pp/75 ohm)	
2 - Green	(0.7 V_pp/75 ohm)	
3 - Blue	(0.7 V_pp/75 ohm)	
4 - TXD		
5 -	Ground	
6 - Red	Ground	
7 - Green	Ground	
8 - Blue	Ground	
9 -		
10 -	Ground	
11 - RXD		
12 - DDC_SDA		
13 - H-sync	0 - 5 V	
14 - V-sync	0 - 5 V	
15 - DDC_SCL		

RC - Out

- - RC

DVI-D *

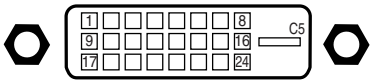


Figure 1-5 DVI-D Connector

1 - RX2-		
2 - RX2+		
3 -	Ground	
4 -		
5 -		
6 - DDC-SCL		
7 - DDC-SDA		
8 -		
9 - RX1-		
10 - RX1+		
11 -	Ground	
12 -		
13 -		
14 - 5V_STBY_SW		
15 -	Ground	
16 - 5V_STBY_SW		
17 - RX0-		
18 - RX0+		
19 -	Ground	
20 -		
21 -	Ground	
22 -		
23 - RXC+		
24 - RXC-		
C5-	Ground	

AV2: SVHS - In *

1 - Y	Ground	
2 - C	Ground	
3 - Y	1 V_pp / 75 ohm	
4 - C / 16:9	0.3 V_pp / 75 ohm	

AV2: Audio - In *

- - Audio - L	0.5 V_rms/10 kohm	
- - Audio - R	0.5 V_rms/10 kohm	

AV1: Audio/Video - In *

- - CVBS	1 V_pp / 75 ohm	
- - Audio - L	0.5 V_rms / 10 kohm	
- - Audio - R	0.5 V_rms / 10 kohm	

AV3: Audio/Video - In *

- - G/Y/Y	0.7 V_pp / 75 ohm	
- - B/Pb/Cb	0.7 V_pp / 75 ohm	
- - R/Pr/Cr	0.7 V_pp / 75 ohm	
- - H		
- - V		
- - Audio - L	0.5 V_rms / 10 kohm	
- - Audio - R	0.5 V_rms / 10 kohm	

(*) Only available in the *Enhanced* version.

1.3 Chassis Overview

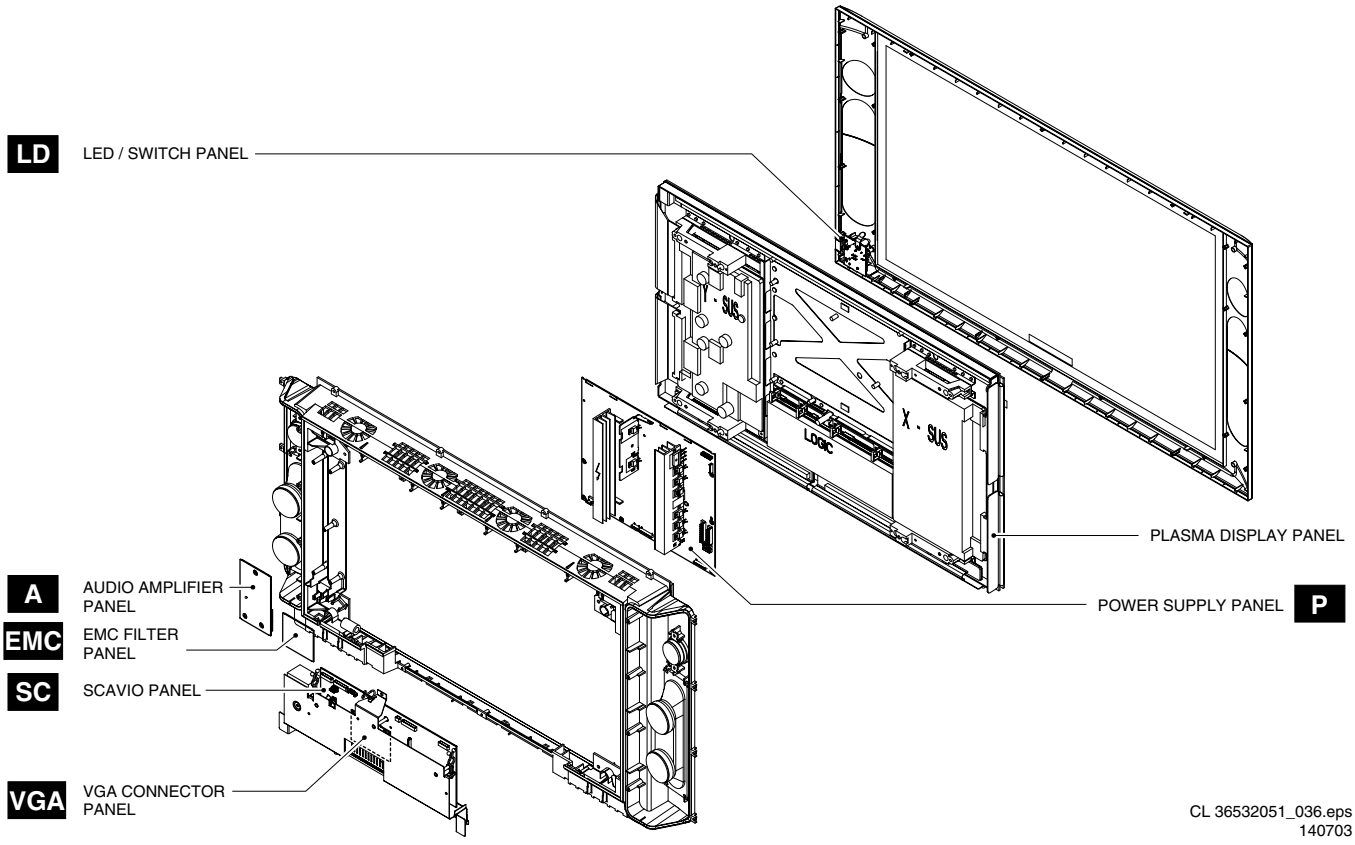


Figure 1-6 PWB Location

2. Safety Instructions, Warnings, and Notes

2.1 Safety Instructions

Safety regulations require that **during** a repair:
- Connect the set to the mains via an isolation transformer (= 800 VA).
- Do not operate the monitor without the front glass plate. One function of this glass plate is to absorb IR radiation. Without this glass plate, the level of radiation could damage your eyes.
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay, in particular, attention to the following points:
- Route the wire trees correctly and fix them with the mounted cable clamps.
- Check the insulation of the mains lead for external damage.
- Check the electrical DC resistance between the mains plug and the secondary side (only for sets which have a mains isolated power supply):
  1. Unplug the mains cord and connect a wire between the two pins of the mains plug.
  2. Set the mains switch to the "on" position (keep the mains cord unplugged!).
  3. Measure the resistance value between the pins of the mains plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the mains plug.
- Check the cabinet for defects, to avoid touching of any inner parts by the customer.

2.2 Warnings

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential.
  Available ESD protection equipment:
  – Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  – Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and the danger of a circuit becoming unstable.

2.3 Notes

- Clean the glass plate in front of the plasma display with a slightly humid cloth. If, due to circumstances, there is some dirt between the glass plate and the plasma display, this must be cleaned by a qualified service engineer (see chapter 4).
- Measure the direct voltages and oscillograms with regard to the chassis ground (⏚), or hot ground (⏚) as this is called.
- The direct voltages and oscillograms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5).
- Where necessary, measure the voltages in the power supply section both in normal operation (①) and in standby (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

2.3.1 Schematic Notes

- All resistor values are in ohms and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are expressed in micro-farads (μ= x10^-6), Nano-Farads (n= x10^-9), or pico-farads (p= x10^-12).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Electrical Replacement Parts List. Therefore, always check this list when there is any doubt.

2.3.2 Rework on BGA (Ball Grid Array) ICs

General
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device removal
As is the case with any component, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area preparation
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.

Device replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers.
To reflow the solder, apply a temperature profile according to the *IC data sheet*. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

3. Directions for Use

3.1 Basic

English

Unpacking and wall mounting instructions

For the unpacking instructions follow the illustrated steps printed on the packaging (outside and inside). For the wall mounting instructions follow the illustrated steps ❹ to ❻ printed on the separate leaflet.

Make sure that the wall mount is being fixed securely enough so that it meets safety standards. The weight of the monitor (excl. packaging) is about 24 kg (32"), 30 kg (37") and 35,5 kg (42").

Note: Stands are optional accessories. Consult your dealer.

Connect your electronic receiver box
See the separate supplied instruction manual with your receiver box.

Connect your computer

To the receiver box

See the illustration in the inside frontcover of this handbook.

❶ Connect one end of a VGA cable to the video card of the computer and the other end to the **VGA IN** connector at the rear side of the receiver box. Fix the connectors firmly with the screws on the plug.

❷ In case of a Multimedia computer, connect the audio cable to the audio outputs of your Multimedia computer and to the **AUDIO VGA R** (right) and **L** (left) inputs of the receiver box.

Directly to the monitor

❶ Connect one end of a VGA cable ① to the video card of the computer and the other end to the **VGA 1** connector at the rear side of the monitor. Fix the connectors firmly with the screws on the plug.

❷ In case of a Multimedia computer, connect the audio cable ② to the audio outputs of your Multimedia computer and to the **AUDIO VGA 1 R** (right) and **L** (left) inputs of the monitor.

Daisy chaining

The Loop Through facility makes it possible to make a daisy chain with a second monitor.

❸ Connect one end of another VGA cable to the **VGA 2** connector at the rear side of the monitor and the other end to the **VGA 1** connector of a second monitor.

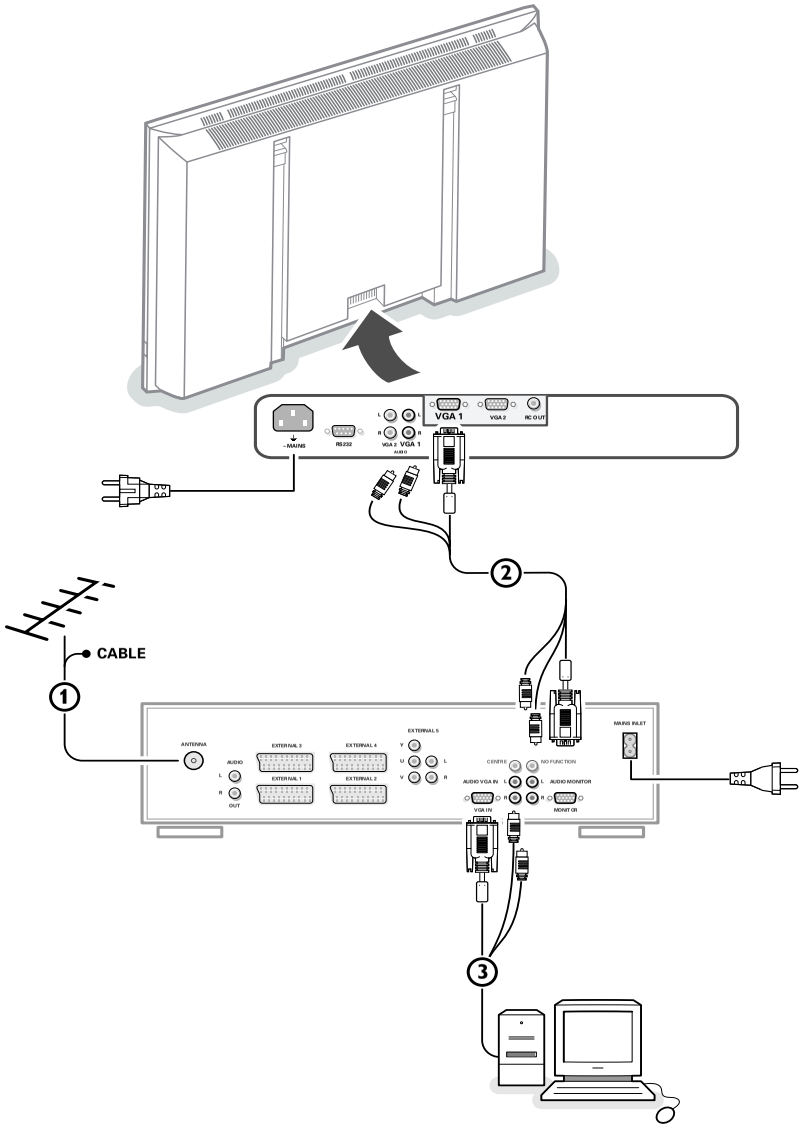
❹ In case of a Multimedia computer, also connect audio cables to the **AUDIO L** and **R** outputs of the original monitor and to the **AUDIO L** and **R** inputs of the second monitor.

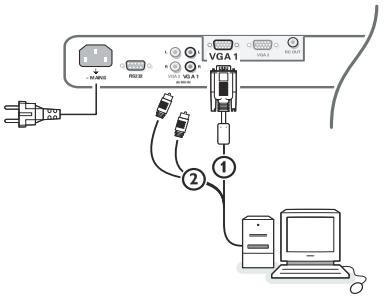
The RC out jack next to the VGA 2 connector makes it possible to daisy chain remote control signals to other equipment. This output cannot be used to daisy chain a second monitor.

Serial I/O port RS232

The RS232 connector is only to be used with the monitor as stand alone.
This connector allows you to control the monitor via your PC (as a replacement of the remote control).

Note: This connector can also be used for dealer service tools.





Monitor Display modes

VGA	640x480	60, 72, 75, 85 Hz
Wide VGA	848x480	60 Hz
Wide VGA	852x480	60 Hz
MAC	640x480	66.67 Hz
MAC	832x624	74.55 Hz
MAC	1024x768	74.93 Hz
MAC	1152x870	75 Hz
SVGA	800x600	56, 60, 72, 75, 85 Hz
XGA	1024x768	60, 70, 75, 85 Hz
SXGA	1280x1024	60, 72 Hz

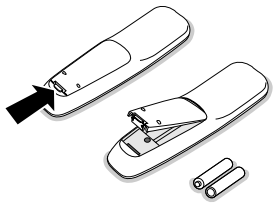
When a VGA computer is connected, the display selection is made automatically.

A message is displayed when the monitor does not support the connected VGA mode. Switch your computer to a correct display mode.

Operation

1. **Insert the mains plug** supplied into the mains inlet at the back of the monitor and in the wall socket.
   For safety, please, only use the supplied rim-earthed mains cord which has to be inserted in a grounded socket.

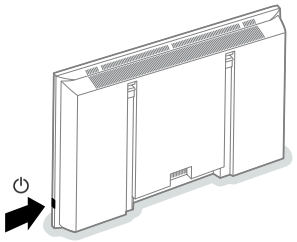
2. **Remote control:** remove the cover of the battery compartment.
   Insert the 2 batteries supplied (Type R6/AA-1.5V).



The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries batteries may not be disposed of with your household waste. Please check on how to dispose of batteries according to local regulations.

3. Make sure that your electronic receiver box and/or PC are switched on and that your PC is in the correct display mode.

4. **Switch the monitor on :** Press the on/off key ⏻ at the right side of the monitor.
   A green indicator lights up and the screen comes on.



When the monitor does not receive a supported VGA signal and is not connected to a receiver box, the screen switches to standby and the red indicator lights up.

When you switch on your monitor **for the first time**, and the monitor is not connected to an electronic receiver box, the language menu automatically appears on the screen. The explanation appears in different languages one at a time.
Follow the instructions on screen to select the correct language or see Setup menu, Language, p. 5.

Use of the remote control

VGA to select your computer connected to the **VGA 1** connector

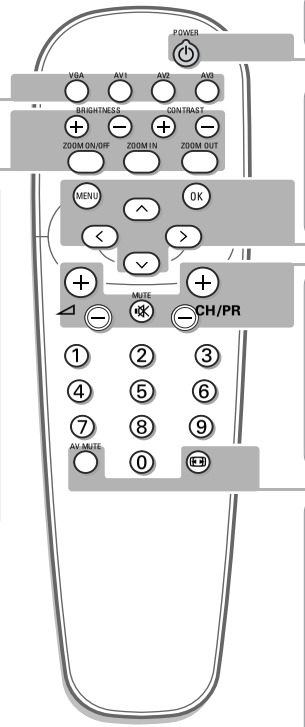
AV1, **AV2**, **AV3** no function

BRIGHTNESS +/-
to adjust the brightness level of the picture

CONTRAST +/-
to adjust the contrast level of the picture

ZOOM ON/OFF to activate/de-activate the zoom function. See p. 4.

ZOOM IN/OUT to adjust the zoom factor and to change the magnification of the picture when zoom is activated. See p. 4.



⏻ to switch to standby or on again

MENU to switch the menu on/off

cursor keys to select your choice and to alter a selected adjustment.

OK to activate your choice

press - or + to adjust the volume

Mute key
Temporarily mute the sound or restore it

CH/PR Programme selection
To browse through the sources selected.

AV MUTE to temporarily mute the picture and the sound or restore it.
When activated a yellow indicator starts blinking in front of the monitor.

Picture format
See Picture 2 menu, p. 4.
Press the key to switch between the different picture formats.

If your monitor no longer responds to the remote control, the batteries may be exhausted.

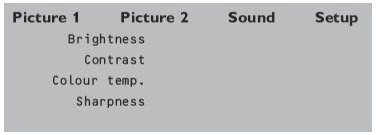
How to dispose of batteries ?

The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries batteries may not be disposed of with your household waste. Please ensure you dispose of batteries according to local regulations.

End of life directives

Philips is paying a lot of attention to produce environmentally-friendly in green focal areas. Your new monitor contains materials which can be recycled and reused.
At the end of its life specialised companies can dismantle the discarded monitor to concentrate the reusable materials and to minimise the amount of materials to be disposed of.
Please ensure you dispose of your old monitor according to local regulations.

Use of the menus and the menu system



1. Press the **MENU** key on the remote control to summon the different menu headers.
2. Press the cursor left/right to move the cursor horizontally through the menu headers.
3. Press the cursor down to access the menu.
   In case of a slider, move the cursor left/right to adjust.
   In case of a list with options, move the cursor right to enter and use the cursor up/down to select an option.
   Press the cursor left to leave the options list.
4. Press the **MENU** key again to switch off the menu.

Note: Sometimes not all the menu items are visible on the screen.
Press the cursor down until all the items are displayed.

Only when the US English language has been selected (see Setup menu, Language, p. 5), the menu items will be displayed with additional icons.

Operation

Press the **MENU** key on the remote control to summon the main menu.

Picture 1 menu

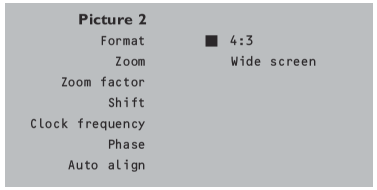
Brightness
This control allows you to adjust the brightness level of the picture.

Contrast
This control allows you to adjust the contrast level of the picture.

Colour temperature
This control allows you to select the colour temperature of the picture.
Move the cursor up/down to make a selection.
Press the cursor left to return to the Picture 1 menu.

Sharpness
This control allows you to adjust the edge definition of a picture.

Picture 2 menu



In this menu you are allowed to adjust attributes which are relevant for the picture on the display, like format, zoom, size, etc.

Format
Select **Format** to summon a list of **available** display formats for showing images in the traditional 4:3 proportions.
Press the cursor up/down to select another display format: 4:3 or Wide screen.

Zoom
Select **Zoom On** to activate the zoom function.
You may also activate the zoom function with the **ZOOM ON/OFF** key on the remote control.
Press the cursor left/right, up/down to select which part of the screen will be zoomed.

Zoom factor
Select **Zoom factor** and press the cursor left/right to adjust the zoom factor and to change the magnification of the picture.
If zoom is not active, Zoom Off, changing the magnification factor will have no effect on the displayed picture.

Shift
This control allows you, when necessary, to move the picture in a horizontal or vertical way.

1. Use the cursor left/right to adjust.
2. Press the **OK** key when done.

Clock frequency

This control allows you, when necessary, to adjust the values of the clock frequency so that especially text can be displayed with an optimal overall sharpness.

Use the cursor left/right to adjust.

Phase

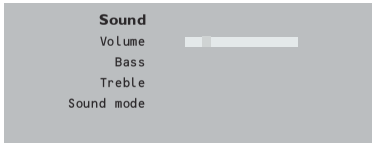
This control allows you, when necessary, to adjust the pixel phase of the picture to avoid picture interference.

Use the cursor left/right to adjust.

Auto align

This control allows you to automatically adjust the shift, the clock frequency and the phase in VGA mode.
Press **OK** to execute.

Sound menu



Volume
This control allows you to adjust the volume level.

Bass
Bass attenuates or amplifies the low-frequency response of the sound of the loudspeakers.

Treble
Treble attenuates or amplifies the high-frequency response of the sound of the loudspeakers.

Sound mode
This control allows you to switch between mono and stereo sound.

Note: Bass, Treble and Sound mode will not be available when an electronic receiver box is connected to the monitor and a VGA source is selected.

Setup menu

1. Use the cursor down to select **Language**.
2. Press the cursor right to enter the list of selectable languages.
3. Use the cursor up/down to scroll through the list and to bring up other languages which are not displayed on the screen at present.

Tips

Ambient temperature

Do not hang up the monitor above a central heating or other heating sources.

Care of the screen

Clean the anti-reflex coated flat glass screen with a slightly damp soft cloth. Do not use abrasives solvents as it can damage the glass surface of the screen.

Plasma Display characteristics

Caution: A video source (such as a video game, DVD, or video information channel) which shows a constant non-moving pattern on the screen, can cause damage to the screen. When your Flat-Monitor is continuously used with such a source, the pattern of the non-moving portion of the game (DVD, etc.) could leave an image permanently on the screen. When not in use, turn the video source **OFF**.
Regularly alternate the use of such video sources with normal viewing.
When switching over to another picture after having displayed the same still picture for a long time (many hours), it may happen that some parts from the previous picture will remain on screen due to a kind of memory effect. This ghost picture will disappear after some time. To avoid this effect change the pictures regularly or for PC use you can turn on a screen saver in your computer.
For video signals, Philips has built in an automatic shift of the picture every 5 minutes to avoid this effect and to prolong the life of the screen.
Very incidentally and after a longer period of unuse (approx. 1 year) the screen may display some strange colour deficiencies. This is quite normal for plasma displays and these effects will disappear after the set has been turned on for some time.
A plasma display consists of a huge amount of colour pixels. It is within industry standards that very few pixels (< 0.001%) may be defective, even for a new set. There is however no reason to doubt about the quality of the set.
The plasma display technology operates with rare gases which are being influenced by air pressure.

Up to an altitude of 2000 m above sea-level (local air pressure equal or above 800 hPa), the display is functioning fine.
Operating the set at a higher altitude (lower air pressure), the picture becomes unstable and the picture performance is deteriorating. The plasma display might then also produce a humming sound. After bringing the set below 2000 m (local air pressure equal or above 800 hPa) it works fine again. Transportation has no influence.

Control of peripheral equipment

The infrared signals of the screen may influence the reception sensitivity of other peripherals. Solution: replace the batteries of the remote control or change position of other equipment. E.g. keep away a wireless headphone from within a radius of 1.5 m.

No stable or not synchronised VGA picture

Check if you have selected the correct VGA mode in your PC.

No picture or no sound

Are the supplied cables connected properly? (The power cable to the display, the VGA cables, the audio cables,...)
Is your PC or receiver box switched on?
Do you see a black screen and the indicator on front of the monitor lights up green, this means that the display mode is not supported.
Switch your VGA source to a correct mode.

If your problem is not solved:
Switch your monitor off and then on again.
Never attempt to repair a defective monitor yourself.
Check with your dealer or call a video technician.

Transport

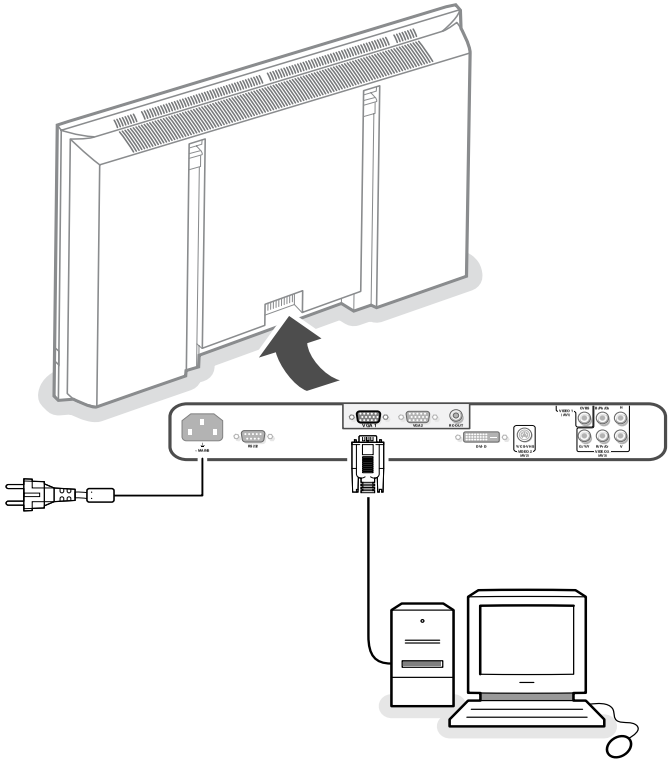
Keep the original packaging to transport the monitor if needed.

Miscellaneous

. Ambient temperature: + 5 ~ + 40°C
. Maximum operating altitude: 2000 m (min. air pressure 800 hPa)
. Mains: Auto Voltage ranging from 95V to 264V 50Hz/60Hz
. Power consumption: around 280 W (32"), 300 W (37"), 380 W (42")
. Standby consumption: < 2 W
. Weight (excl. packaging) Display: 24 kg (32"), 30 kg (37"), 35,5 kg (42")
. Dimensions (wxhxd): Display: 96.4 x 51.2 x 8.9 cm (32") 106 x 58 x 9 cm (37") 121 x 66 x 9cm (42")
. Wall mounting bracket included

Personal Notes:

English



Unpacking and wall mounting instructions

For the unpacking instructions follow the illustrated steps printed on the packaging (outside and inside). For the wall mounting instructions follow the illustrated steps ❹ to ❻ printed on the separate template.

Make sure that the wall mount is being fixed securely enough so that it meets safety standards. The weight of the monitor (excl. packaging) is about 35 kg.

Note: Stands are optional accessories. Consult your dealer.

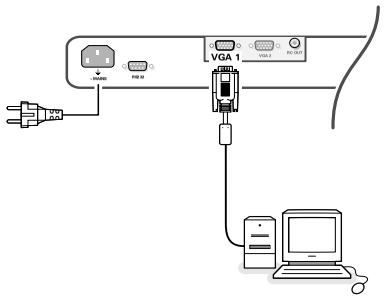
Connect your computer

Directly to the monitor

❶ Connect one end of a VGA cable to the video card of the computer and the other end to the **VGA 1** connector at the rear side of the monitor. Fix the connectors firmly with the screws on the plug.

❷ In case of a multimedia computer, connect the audio cable to the audio outputs of your multimedia computer and to the audio inputs of your external amplifier.

VGA 2: The video connector for VGA 2 can be programmed to become an input or an output via the Setup menu, see p. 6. The function of being input or output is determined by the used mode. If the monitor is used in video mode, the VGA 2 connector is VGA output. If the monitor is used in monitor mode, the connector is VGA input or output.



To an electronic receiver box

See the handbook of the receiver box.

❶ Connect one end of a VGA cable to the video card of the computer and the other end to the **PC/MAC IN** connector at the rear side of the receiver box. Fix the connectors firmly with the screws on the plug.

❷ In case of a Multimedia computer, connect the audio cable to the audio outputs of your Multimedia computer and to the **AUDIO IN R** and **L** inputs of the receiver box. For sound reproduction, connect your external amplifier to the receiver box.

Note: Only use the VGA cable supplied with the monitor.

Daisy chaining

The Loop Through facility makes it possible to make a daisy chain with a second monitor.

Connect one end of another VGA cable to the **VGA 2** connector at the rear side of the monitor and the other end to the **VGA 1** connector of a second monitor.

Note: The RC out jack next to the VGA 2 connector makes it possible to daisy chain remote control signals to other equipment. This output cannot be used to daisy chain a second monitor.

Computer Display modes

VGA	640x480	60, 72, 75, 85 Hz
Wide VGA	848x480	60 Hz
Wide VGA	852x480	60 Hz
MAC	640x480	66.67 Hz
MAC	832x624	74.55 Hz
MAC	1024x768	74.93 Hz
MAC	1152x870	75 Hz
SVGA	800x600	56, 60, 72, 75, 85 Hz
XGA	1024x768	60, 70, 75, 85 Hz
SXGA	1280x1024	60, 72 Hz (not with DVI-D-source)

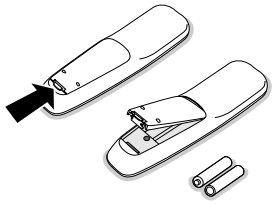
When a VGA computer is connected, the display selection is made automatically.

A message is displayed when the monitor does not support the connected VGA mode.
Switch your computer to a correct display mode.

Operation

❶ **Insert the mains plug** supplied into the mains inlet at the back of the monitor and in the wall socket. Please, only use the supplied rim-earthed mains cord which has to be inserted in a grounded socket.

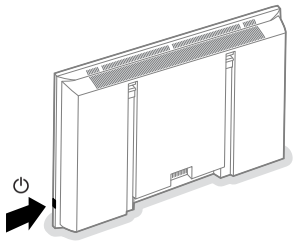
❷ Remote control: remove the cover of the battery compartment.
Insert the 2 batteries supplied (Type LR6/AA-1.5V).



The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries batteries may not be disposed of with your household waste. Please check on how to dispose of batteries according to local regulations.

❸ Make sure that your receiver box and/or PC are switched on and that your PC is in the correct display mode.

❹ **Switch the monitor on** : Press the power button ⏻ at the right side of the monitor.
A green indicator lights up and the screen comes on.



When the monitor does not receive a supported VGA signal and is not connected to a receiver box the screen switches to standby and the red indicator lights up.

When you switch on your monitor for the first time, and the monitor is not connected to a receiver box, the menu language automatically appears on the screen. The explanation appears in different languages one at a time.
Follow the instructions on screen to select the correct language or see Setup menu, Language, p. 6.

Use of the remote control

VGA
press repeatedly to select your computer connected to the **VGA 1** or **2** connector or to the **DVI-D** connector.

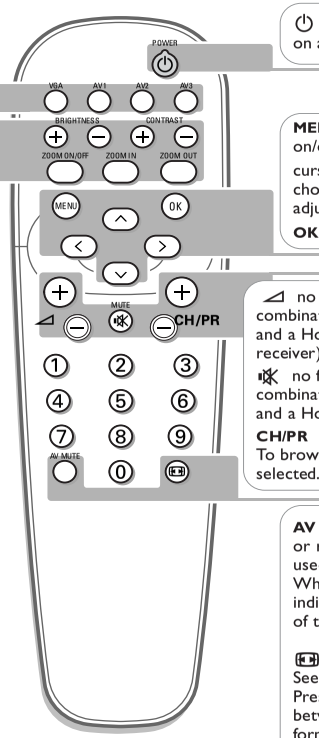
AV1, AV2, AV3
press to select the peripherals connected to the connector indicated on the monitor.

BRIGHTNESS +/-
to adjust the brightness level of the picture

CONTRAST +/-
to adjust the contrast level of the picture

ZOOM ON/OFF
to activate/de-activate the zoom function.
See p. 5.

ZOOM IN/OUT
to adjust the zoom factor and to change the magnification of the picture when zoom is activated. See p. 5.



⏻ to switch to standby or on again

MENU to switch the menu on/off
cursor buttons to select your choice and to alter a selected adjustment.
OK to activate your choice

no function (except when in combination with a receiver box and a Home Cinema audio receiver)
no function (except when in combination with a receiver box and a Home Cinema audio receiver)
CH/PR Program selection
To browse through the sources selected.

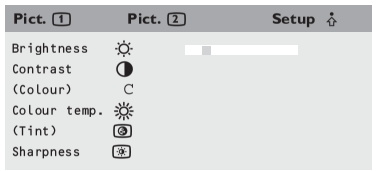
AV MUTE to mute the picture or restore it (if the monitor is used in monitor mode).
When activated a green indicator starts blinking in front of the monitor.

Picture format
See Picture 2 menu, p. 5.
Press the key to switch between the different picture formats.

On screen information

When the monitor is used in the monitor mode, information about the active source (**AV1, AV2, AV3, VGA1, VGA2** or **DVI-D**) and the supported video, VGA or HD-format of the selected source is displayed on the screen together with the selected picture format and icons informing about AV mute.

Use of the menus and the menu system



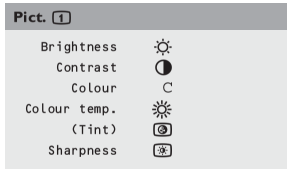
1. Press the **MENU** key on the remote control to summon the different menu headers.
2. Press the cursor left/right to move the cursor horizontally through the menu headers.
3. Press the cursor down to access the menu.
   In case of a slider, move the cursor left/right to adjust.

   In case of a list with options, move the cursor right to enter and use the cursor up/down to select an option.
   Press the cursor left to leave the options list.
4. Press the **MENU** key again to switch off the menu.

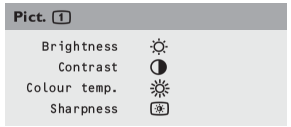
Note: Sometimes not all the menu items are visible on the screen.
Press the cursor down until all the items are displayed.

Only when the US English language has been selected (see Setup menu, Language, p. 6), the menu items will be displayed with additional icons.

SD video-mode



VGA-mode + HD video mode



Operation

Press the **MENU** key on the remote control to sun the main menu.

Picture 1 menu

Brightness
This control allows you to adjust the brightness level of the picture.

Contrast
This control allows you to adjust the contrast level of the picture.

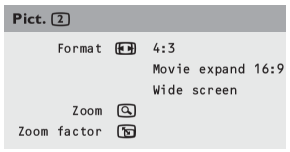
Colour *(only available when the source is **AV1**, **AV2** or **AV3 YCbCr**)*
This control allows you to adjust the saturation level of the colours to suit your personal preference.

Colour temperature
This control allows you to select the Colour temperature of the picture.
Move the cursor up/down to make a selection.
Press the cursor left to return to the Picture 1 menu.

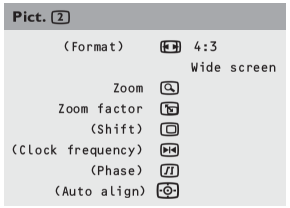
Tint *(only with NTSC signals and when the source is **AV1** or **AV2**)*
This control allows you to compensate for the Colour variations in NTSC encoded transmissions.

Sharpness
This control allows you to adjust the edge definition of a picture.

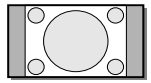
SD video-mode



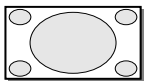
VGA-mode + HD video mode



4:3 VGA-mode

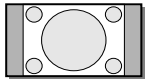


4:3

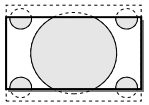


Wide screen

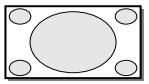
SD video-mode



4:3



Movie expand 16:9



Wide screen

Picture 2 menu

Format *(only available in 4:3 VGA mode and SD video mode)*
Select **Format** to summon a list of **available** display formats.
Press the cursor up/down to select another display format: 4:3, Movie Expand 16:9 or Wide screen.

Note: Movie Expand 16:9 is not available in VGA mode.

Zoom
Select **Zoom On** to activate the zoom function.
You may also activate the zoom function with the **ZOOM ON/OFF** key on the remote control.
If no zoom is active, press the cursor left/right, up/down to select which part of the screen will be zoomed.

Zoom factor
Select **Zoom factor** and press the cursor left/right to adjust the zoom factor and to change the magnification of the picture.
If zoom is not active changing the magnification factor will have no effect on the displayed picture.

Shift *(only available in VGA mode on VGA 1 or VGA 2 and in one of the HD modes. See Connect Peripheral equipment, p. 7.)*

This control allows you, when necessary, to move the picture in a horizontal or vertical way.

1. Use the cursor left/right, up/down to adjust.
2. Press the **OK** key when done.

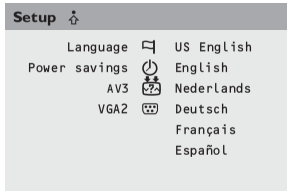
Clock frequency *(only available in VGA mode on VGA 1 or VGA 2. See Connect Peripheral equipment, p. 7.)*
This control allows you, when necessary, to adjust the values of the clock frequency so that especially text can be displayed with an optimal overall sharpness.
Use the cursor left/right to adjust.

Phase *(only available in VGA mode on VGA 1 or VGA 2. See Connect Peripheral equipment, p. 7.)*

This control allows you, when necessary, to adjust the pixel phase of the picture to avoid picture interference.
Use the cursor left/right to adjust.

Auto align *(only available in VGA mode on VGA1 or VGA2 and in one of the HD modes. See Connect Peripheral Equipment, p. 7.)*

This control allows you to automatically adjust the shift, the clock frequency and the phase in VGA mode and the shift in HD modes.
Press **OK** to execute.



Setup menu

Language

1. Use the cursor down to select **Language**.
2. Press the cursor right to enter the list of selectable languages.
3. Use the cursor up/down to scroll through the list and to bring up other languages which are not displayed on the screen at present.
   Note: Only with the US English language, the menu items will be displayed with additional icons.

Power savings

This control allows you to overrule the automatic power savings feature.
In case **Power savings** is switched **Off**, the power always remains on until the monitor is forced to standby.

1. Use the cursor down to select **Power savings**.
2. Press the cursor left/right to select **On** or **Off**.

AV3

This control allows you to set the **AV3** input to HD-RGB, YCbCr or HD-YPbPr. When having selected **Auto**, the monitor makes the selection automatically between YCbCr, HD-YPbPr or HD-RGB.
See also p. 7, Equipment with Component Video Output connectors.

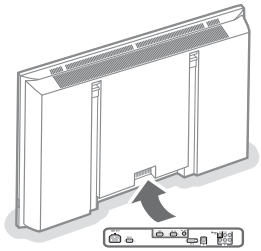
1. Use the cursor down to select **AV3**.
2. Press the cursor right to enter the list with options.
3. Press the cursor up/down to select one of the options.

VGA 2

This control allows you to select whether to set the VGA 2 connector as input, output or even HD-input.

1. Use the cursor down to select **VGA 2**.
2. Press the cursor right to enter the list with options: **VGA IN**, **VGA OUT** or **HD IN.**
3. Press the cursor up/down to select one of the options.
   Note: AV3 and VGA 2 will not be available in VGA loop through mode, i.e. when a receiver box is connected to the monitor and a VGA source is selected.

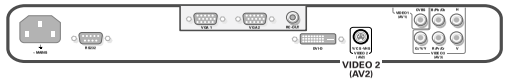
Connect Peripheral Equipment



You may connect 3 possible VGA sources (**VGA 1**, **VGA 2** or **DVI-D**) and 3 possible video sources (**VIDEO 1 (AV1)**, **VIDEO 2 (AV2)** and **VIDEO 3 (AV3)**) to the monitor.
The following diagrams show you where you can connect your peripheral equipment.

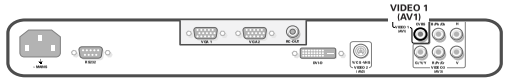
Note: in case the monitor is operating in combination with a receiver box, the VGA and video inputs on the monitor will be disabled and the VGA 2 connector becomes an output.

Equipment with Y/C-SVHS output connectors



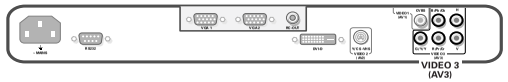
Connect the video cable to the **Y/C S-VHS VIDEO 2 (AV2)** connector.

Equipment with CVBS output connectors



Connect the video cable to the **CVBS VIDEO 1 (AV1)** connector.

Equipment with Component Video Output connectors



Note: VIDEO 3 (AV3) can handle the following video signals: YCbCr, HD-PbPr and HD-RGB. The discrimination between the various input formats and the appropriate video processing is done automatically. It is however possible to overrule the automatic detection. See Setup menu, p. 6.

1. Connect the video cables of your equipment with YPbPr output with composite sync on Y, or of your equipment with YCbCr output with composite sync on Y to the YPbPr, resp. YCbCr input **VIDEO 3 (AV3) IN** sockets of the monitor.
2. Connect the video cables of your equipment with RGB output with separate Horizontal and Vertical sync to the RGB input sockets and to the H and V sockets **VIDEO 3 (AV3)** of the monitor.

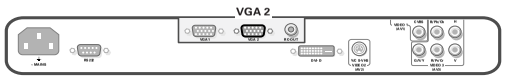
   Note: when High Definition signals are inputted to the monitor via the YPbPr/RGB input, the monitor switches to the HD Video Mode.
   The following HD and ED video modes are supported by the monitor on the YPbPr, RGB and VGA 2 HD input:

   1920x1080/60I 720x480/60P
   1280x720/60P 720x576/50P

   The following SD video modes are supported by the monitor on the YCbCr input:

   720x480/60I
   720x576/50I

High Definition equipment with VGA connector

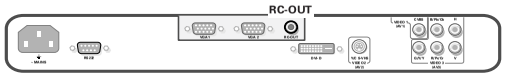


Connect the VGA output of your equipment to the **VGA2** connector.

Digital DVI output of your PC (DVI-D)

Connect the Digital DVI output of your PC to the **DVI-D** connector.

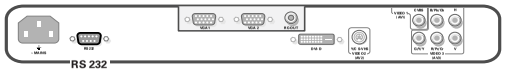
RC out connector



This connector allows you to daisy chain remote control signals to other equipment (e.g. AV receiver, IR repeater) which have an electrical RC in.

Note: it is not possible to daisy chain a second monitor.

Serial I/O port RS232



The RS232 connector is only to be used with the monitor as stand alone.
This connector allows you to control the monitor via your PC (as a replacement of the remote control).

Note: This connector can also be used for dealer service tools.

Tips

Ambient temperature
Do not hang up the monitor above a central heating or other heating sources.

Care of the screen
Clean the anti-reflex coated flat glass screen with a slightly damp soft cloth. Do not use abrasives solvents as it can damage the glass surface of the screen.

Plasma Display characteristics
Caution: A video source (such as a video game, DVD, or video information channel) which shows a constant non-moving pattern on the monitor screen, can cause damage to the screen. When your Flat-Monitor is continuously used with such a source, the pattern of the non-moving portion of the game (DVD, etc.) could leave an image permanently on the screen. When not in use, turn the video source **OFF**.
Regularly alternate the use of such video sources with normal viewing.
When switching over to another picture after having displayed the same still picture for a long time (many hours), it may happen that some parts from the previous picture will remain on screen due to a kind of memory effect. This ghost picture will disappear after some time. To avoid this effect change the pictures regularly or for PC use you can turn on a screen saver in your computer.
Philips has built in an automatic shift of the picture in video mode every 5 minutes to avoid this effect and to prolong the life of the screen.
Very incidentally and after a longer period of unuse (approx. 1 year) the screen may display some strange colour deficiencies. This is quite normal for plasma displays and these effects will disappear after the set has been turned on for some time.
A plasma display consists of a high number of colour pixels. It is within industry standards that very few pixels (< 0.001%) may be defective, even for a new set. There is however no reason to doubt about the quality of the set.
The plasma display technology operates with rare gases which are being influenced by air pressure.
Up to an altitude of 2000 m above sea-level (local air pressure equal or above 800 hPa), the display is functioning fine. Operating the set at a higher altitude (lower air pressure), the picture becomes unstable and the picture performance is deteriorating. The plasma display might then also produce a humming sound. Bringing the set below 2000 m (local air pressure equal or above 800 hPa) it works fine again. Transportation has no influence.

Control of peripheral equipment
The infrared radiation of the screen may influence the reception sensitivity of other peripherals. Solution: replace the batteries of the remote control or change position of other equipment. E.g. keep away a wireless headphone from within a radius of 1,5 m.

No stable or not synchronised VGA picture
Check if you have selected the correct display mode in your PC. See p. 2, Computer display modes.

No picture
Are the supplied cables connected properly? (The power cable to the display, the VGA cables,...)
Is your PC switched on?
Do you see a black screen and the indicator in front of the monitor lights up green, this means that the display mode is not supported.
Switch your VGA source to a correct mode.

Remote control
If your monitor no longer responds to the remote control, the batteries may be exhausted.

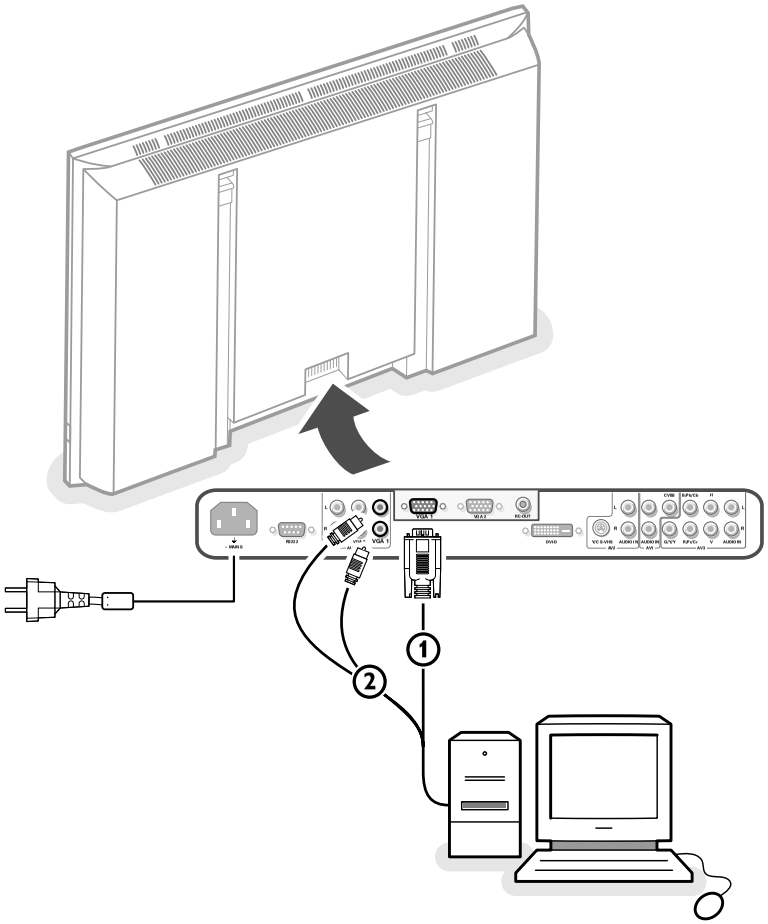
If your problem is not solved:
Switch your monitor off and then on again.
Never attempt to repair a defective monitor yourself.
Check with your dealer or call a video technician.

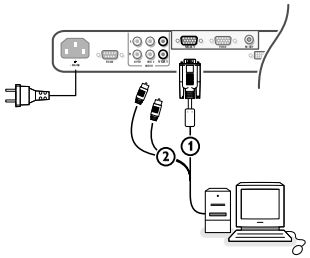
Transport
Keep the original packaging to transport the monitor if needed.

End of life directives
Philips is paying a lot of attention to produce environmentally-friendly in green focal areas. Your new monitor contains materials which can be recycled and reused.
At the end of its life specialised companies can dismantle the discarded monitor to concentrate the reusable materials and to minimise the amount of materials to be disposed of.
Please ensure you dispose of your old monitor according to local regulations.

How to dispose of batteries?
The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries batteries may not be disposed of with your household waste. Please ensure you dispose of batteries according to local regulations.

Miscellaneous
- Ambient temperature: + 5~ + 40°C
- Maximum operating altitude: 2000 m /6562 ft (min. air pressure 800 hPa)
- Mains: AC 95-264V 50Hz/60Hz
- Power consumption: around 290W
- Standby consumption: < 2W
- Weight (excl. packaging)
  Display: 35 kg
- Dimensions (wxhxd):
  Display: 107 x 66 x 9 cm
- Wall mounting bracket included





Unpacking and wall mounting instructions

For the unpacking instructions follow the illustrated steps printed on the packaging (outside and inside). For the wall mounting instructions follow the illustrated steps ❹ to ❻ printed on the separate template and in the supplied booklet.

Make sure that the wall mount is being fixed securely enough so that it meets safety standards. The weight of the monitor (excl. packaging) is about 53 Lbs or 79 Lbs, depending on the screen size (32" or 42").

Note: stands are optional acccessories. Consult your dealer.

Connect your computer

Directly to the monitor

1. Connect one end of a VGA cable ① to the video card of the computer and the other end to the **VGA 1** connector at the rear side of the monitor. Fix the connectors firmly with the screws on the plug.
2. In case of a Multimedia computer, connect the audio cable ② to the audio outputs of your Multimedia computer and to the **AUDIO VGA 1 R** (right) and **L** (left) inputs of the TV monitor.

VGA 2: The video connector for VGA 2 can be programmed to become an input or an output via the Setup menu, see p. 8. The function of being input or output is determined by the used mode. If the monitor is used in TV mode, the VGA 2 connector is VGA output. If the monitor is used in monitor mode, the connector is VGA input or output.

To a TV receiver box

See the handbook of the TV receiver box.

1. Connect one end of a VGA cable to the video card of the computer and the other end to the **PC/MAC IN** connector at the rear side of the TV receiver box. Fix the connectors firmly with the screws on the plug.
2. In case of a Multimedia computer, connect the audio cable to the audio outputs of your Multimedia computer and to the **AUDIO IN R** (right) and **L** (left) inputs of the TV receiver box.

Note: Only use the VGA cable supplied with the monitor.

Daisy chaining

The Loop Through facility makes it possible to make a daisy chain with a second monitor.

3. Connect one end of another VGA cable to the **VGA 2** connector at the rear side of the monitor and the other end to the **VGA 1** connector of a second monitor.
4. In case of a Multimedia computer, also connect audio cables to the **AUDIO L** and **R** outputs of the original monitor and to the **AUDIO L** and **R** inputs of the second monitor.

The RC out jack next to the VGA 2 connector makes it possible to daisy chain remote control signals to other equipment.
This output cannot be used to daisy chain a second monitor.

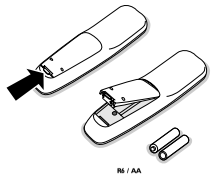
Computer Display modes

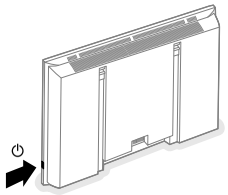
VGA	640x480	60, 72, 75, 85 Hz
Wide VGA	848x480	60 Hz
Wide VGA	852x480	60 Hz
MAC	640x480	66.67 Hz
MAC	832x624	74.55 Hz
MAC	1024x768	74.93 Hz
MAC	1152x870	75 Hz
SVGA	800x600	56, 60, 72, 75, 85 Hz
XGA	1024x768	60, 70, 75, 85 Hz
SXGA	1280x1024	60 Hz, 72 Hz (not with DVI-D source)

When a VGA computer is connected, the display selection is made automatically.

A message is displayed when the monitor does not support the connected VGA mode. Switch your computer to a correct display mode.

Operation





1. **Insert the mains plug** supplied into the mains inlet at the back of the monitor and in the wall socket. For safety, please, only use the supplied rim-earthed mains cord which has to be inserted in a grounded socket.

2. **Remote control:** remove the cover of the battery compartment. Insert the 2 batteries supplied (Type LR6/AA-1.5V).
The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries batteries may not be disposed of with your household waste. Please check on how to dispose of batteries according to local regulations.

3. Make sure that your TV receiver box and/or PC are switched on and that your PC is in the correct display mode.

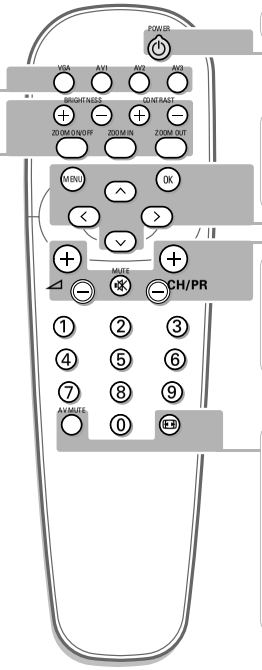
4. **Switch the monitor on :** Press the power key ⏻ at the right side of the monitor.
A green indicator lights up and the screen comes on.
When the monitor does not receive a supported VGA signal and is not connected to a receiver box, the screen switches to standby and the red indicator lights up.

   When you switch on your monitor **for the first time**, and the monitor is not connected to a TV receiver box, the language menu automatically appears on the screen. The explanation appears in different languages one at a time.
Follow the instructions on screen to select the correct language or see Setup menu, Language, p. 8.

Use of the remote control

VGA
press repeatedly to select your computer connected to the **VGA 1** or **2** connector or to the **DVI-D** connector.

AV1, **AV2**, **AV3**
press to select the peripherals connected to the connector indicated on the monitor.



⏻ to switch to standby or on again

MENU to switch the menu on/off
cursor buttons to select your choice and to alter a selected adjustment.
OK to activate your choice

BRIGHTNESS +/-
to adjust the brightness level of the picture

CONTRAST +/-
to adjust the contrast level of the picture

ZOOM ON/OFF
to activate/de-activate the zoom function.
See p. 7.

ZOOM IN/OUT to adjust the zoom factor and to change the magnification of the picture when zoom is activated.
See p. 7.

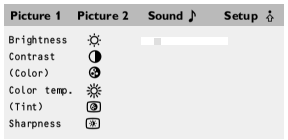
press - or + to adjust the volume
Mute button
Mute the sound or restore it
CH/PR Program selection
To browse through the sources selected.

AV MUTE to mute the picture and the sound or restore it (if the monitor is used in monitor mode).
When activated a green indicator starts blinking in front of the monitor.

Picture format
See Picture 2 menu, p. 7.
Press the button to switch between the different picture formats.

On screen information
When the monitor is used in the monitor mode, information about the active source (**AV1**, **AV2**, **AV3**, **VGA1**, **VGA2** or **DVI-D**), and the supported video, VGA or HD-format of the selected source is displayed on the screen together with the selected picture format and icons informing about selected sound mode and AV or audio mute.

Use of the menus and the menu system



1. Press the **MENU** button on the remote control to summon the different menu headers.
2. Press the cursor left/right to move the cursor horizontally through the menu headers.
3. Press the cursor down to access the menu.

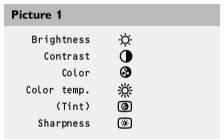
   In case of a slider, move the cursor left/right to adjust.

   In case of a list with options, move the cursor right to enter and use the cursor up/down to select an option.
   Press the cursor left to leave the options list.
4. Press the **MENU** button again to switch off the menu.

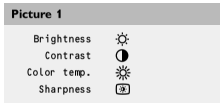
Note: Sometimes not all the menu items are visible on the screen.
Press the cursor down until all the items are displayed.

Only when the US English language has been selected (see Setup menu, Language, p. 8), the menu items will be displayed with additional icons.

SD video-mode



VGA-mode + HD video mode



Operation

Press the **MENU** button on the remote control to summon the main menu.

Picture 1 menu

Brightness
This control allows you to adjust the brightness level of the picture.

Contrast
This control allows you to adjust the contrast level of the picture.

Color *(only available when the source is **AV1**, **AV2** or **AV3 YCbCr**)*

This control allows you to adjust the saturation level of the colors to suit your personal preference.

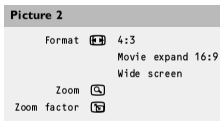
Color temperature
This control allows you to select the color temperature of the picture.
Move the cursor up/down to make a selection.
Press the cursor left to return to the Picture 1 menu.

Tint *(only with NTSC signals and when the source is **AV1** or **AV2**)*

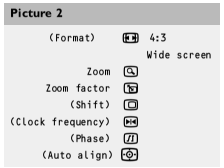
This control allows you to compensate for the color variations in NTSC encoded transmissions.

Sharpness
This control allows you to adjust the edge definition of a picture.

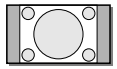
SD video-mode



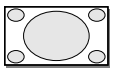
VGA-mode + HD video mode



4:3 VGA-mode

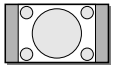


4:3

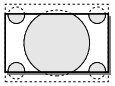


Wide screen

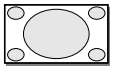
SD video-mode



4:3



Movie expand 16:9



Wide screen

Picture 2 menu

Zoom

Select **Zoom On** to activate the zoom function.
You may also activate the zoom function with the **ZOOM ON/OFF** button on the remote control.
If no zoom is active, press the cursor left/right, up/down to select which part of the screen will be zoomed.

Zoom factor
Select **Zoom factor** and press the cursor left/right to adjust the zoom factor and to change the magnification of the picture.
If zoom is not active, changing the magnification factor will have no effect on the displayed picture.

Format *(only available in 4:3 VGA mode and SD video mode)*
Select **Format** to summon a list of **available** display formats.
Press the cursor up/down to select another display format: **4:3**, Movie expand **16:9** or Wide screen.
Note: Movie expand 16:9 is not available in VGA mode.

Shift *(only available in VGA mode on VGA1 or VGA2 and in one of the HD modes. See Connect Peripheral Equipment, p. 9.)*

This control allows you, when necessary, to move the picture in a horizontal or vertical way.

1. Use the cursor left/right, up/down to adjust.
2. Press the **OK** button when done.

Clock frequency *(only available in VGA mode on VGA 1 or VGA 2. See Connect Peripheral equipment, p. 9.)*
This control allows you, when necessary, to adjust the values of the clock frequency so that especially text can be displayed with an optimal overall sharpness.

Use the cursor left/right to adjust.

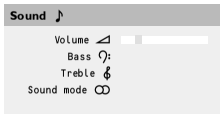
Phase *(only available in VGA mode on VGA 1 or VGA 2. See Connect Peripheral equipment, p. 9.)*

This control allows you, when necessary, to adjust the pixel phase of the picture to avoid picture interference.

Use the cursor left/right to adjust.

Auto align *(only available in VGA mode on VGA1 or VGA2 and in one of the HD modes. See Connect Peripheral Equipment, p. 9.)*

This control allows you to automatically adjust the shift, the clock frequency and the phase in VGA mode and the shift in HD modes.
Press **OK** to execute.



Sound menu

Volume

This control allows you to adjust the volume level of the sound from the speakers.

Bass

Bass attenuates or amplifies the low-frequency response of the sound from the loudspeakers.

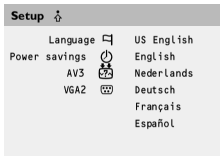
Treble

Treble attenuates or amplifies the high-frequency response of the sound from the loudspeakers.

Sound mode

This control allows you to switch between mono and stereo sound.

Note: Bass, Treble and Sound mode will not be available in VGA loop through mode, i.e. when a TV receiver box is connected to the monitor and a VGA source is selected.



Setup menu

Language

1. Use the cursor down to select **Language**.
2. Press the cursor right to enter the list of selectable languages.
3. Use the cursor up/down to scroll through the list and to bring up other languages which are not displayed on the screen at present.
   Note: Only with the US English language, the menu items will be displayed with additional icons.

Power savings

This control allows you to overrule the automatic power savings feature.
In case **Power savings** is switched **Off**, the power always remains on until the monitor is forced to standby.

1. Use the cursor down to select **Power savings**.
2. Press the cursor left/right to select **On** or **Off**.

AV3

This control allows you to set the AV3 input to HD-RGB, YCbCr or HD-YPbPr. When having selected **Auto**, the monitor makes the selection automatically between YCbCr, HD-YPbPr or HD-RGB.
See also p. 9, Equipment with Component Video Output connectors.

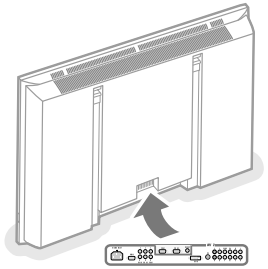
1. Use the cursor down to select **AV3**.
2. Press the cursor right to enter the list with options.
3. Press the cursor up/down to select one of the options.

VGA2

This control allows you to select whether to set the VGA2 connector as input, output or even HD-input.

1. Use the cursor down to select **VGA2**.
2. Press the cursor right to enter the list with options: **VGA IN**, **VGA OUT** or **HD IN**.
3. Press the cursor up/down to select one of the options.
   Note: AV3 and VGA2 will not be available in VGA loop through mode, i.e. when a TV receiver box is connected to the monitor and a VGA source is selected.

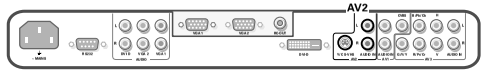
Connect Peripheral Equipment



You may connect 3 possible VGA sources (**VGA1**, **VGA2** or **DVI-D**) and 3 possible video sources (**AV1**, **AV2** and **AV3**) to the monitor.
The following diagrams show you where you can connect your peripheral equipment.

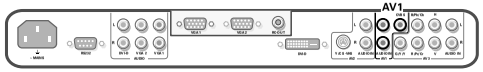
Note: in case the monitor is operating in combination with a TV receiver box (TV mode), the AV inputs on the monitor will be disabled and the VGA2 connector becomes an output.

Equipment with Y/C-SVHS output connectors



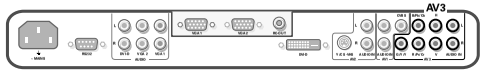
1. Connect the video cable to the **AV2** connector.
2. Connect the audio cables to the equipment's **AUDIO L** and **R** sockets and to the **AUDIO L** and **AUDIO R AV2** sockets on the monitor.

Equipment with CVBS output connectors



1. Connect the video cable to the **AV1** connector.
2. Connect the audio cables to the equipment's **AUDIO L** and **R** sockets and to the **AUDIO L** and **R AV1** sockets on the monitor.

Equipment with Component Video Output connectors



Note: AV3 can handle the following video signals: YCbCr, HD-YPbPr and HD-RGB. The discrimination between the various input formats and the appropriate video processing is done automatically. It is however possible to overrule the automatic detection. See Setup menu, p. 8.

1. Connect the video cables of your equipment with YPbPr output with composite sync on Y, or of your equipment with YCbCr output with composite sync on Y to the YPbPr, resp. YCbCr input **AV3 IN** sockets of the monitor.
2. Connect the video cables of your equipment with RGB output with separate Horizontal and Vertical sync to the RGB input sockets and to the H and V sockets **AV3** of the monitor.
3. Connect the audio cables to the equipment's **AUDIO L** and **R** sockets and to the **AUDIO IN L** and **AUDIO IN R AV3** sockets on the monitor.

Note: when High Definition signals are inputted to the monitor via the YPbPr/RGB input, the monitor switches to the HD Video Mode.

The following HD and SD video modes are supported by the monitor on the YPbPr, RGB and VGA2 HD input:

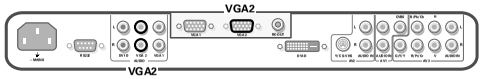
1920x1080/60I
1280x720/60P
720x480/60P
720x576/50P

The following SD video modes are supported by the monitor on the YCbCr input:

720x480/60I
720x576/50I

Note: you should make the correct selection for AV3 in the Setup menu, p. 8.

High Definition equipment with VGA connector

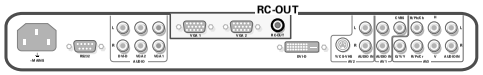


1. Connect the VGA output of your equipment to the **VGA2** connector.
2. Connect the audio cables to the equipment's **AUDIO L** and **R** sockets and to the **VGA2 AUDIO L** and **R** sockets on the monitor.
   *Note: you should select **HD IN** for **VGA2** in the Setup menu. (See p. 8.)*

Digital DVI output of your PC (DVI-D)

1. Connect the Digital DVI output of your PC to the **DVI-D** connector.
2. Connect the audio cables to the **DVI-D AUDIO L** and **R** sockets on the monitor.

RC out connector



This connector allows you to daisy chain remote control signals to other equipment (e.g. AV receiver, IR repeater) which have an electrical RC in.

Note: it is not possible to daisy chain a second monitor.

Serial I/O port RS232

The RS232 connector is only to be used with the monitor as stand alone. This connector allows you to control the monitor via your PC (as a replacement of the remote control). **Software is supplied on CD-ROM**.

Note: This connector can also be used for dealer service tools.

Supplied driver software

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Limitation of liability: Philips and the authors of programs sold by Philips accept no responsibilities nor liability arising from or relating to this software or documenation.

Tips

Ambient temperature

Do not hang up the monitor above a central heating or other heating sources.

Care of the screen

Clean the anti-reflex coated flat glass screen with a slightly damp soft cloth. Do not use abrasives solvents as it can damage the glass surface of the screen.

Plasma Display characteristics

Caution: A video source (such as a video game, DVD, or TV information channel) which shows a constant non-moving pattern on the TV screen, can cause damage to the screen. When your Flat-TV is continuously used with such a source, the pattern of the non-moving portion of the game (DVD, etc.) could leave an image permanently on the screen. When not in use, turn the video source **OFF**.
Regularly alternate the use of such video sources with normal TV viewing.

When switching over to another picture after having displayed the same still picture for a long time (many hours), it may happen that some parts from the previous picture will remain on screen due to a kind of memory effect. This ghost picture will disappear after some time. To avoid this effect change the pictures regularly or for PC use you can turn on a screen saver in your computer.
Philips has built in an automatic shift of the picture in video mode every 5 minutes to decrease this effect and to prolong the life of the screen.
Very incidentally and after a longer period of unuse (approx. 1 year) the screen may display some strange color deficiencies. This is quite normal for plasma displays and these effects will disappear after the set has been turned on for some time.
A plasma display consists of more than 3.1 Million color pixels. It is within industry standards that very few pixels (< 0.001%) may be defective, even for a new set. There is however no reason to doubt about the quality of the set.
The plasma display technology operates with rare gases which are being influenced by air pressure.
Up to an altitude of 6562 ft above sea-level, the display is functioning fine. Operating the set at a higher altitude, the picture becomes unstable and the picture performance is deteriorating. After bringing the set below 6562 ft it works fine again. Transportation has no influence.

Control of peripheral equipment

The infrared radiation of the screen may influence the reception sensitivity of other peripherals. Solution: replace the batteries of the remote control or change position of other equipment. E.g. keep away a wireless headphone from within a radius of 4.92 ft.

No stable or not synchronized VGA picture

Check if you have selected the correct display mode in your PC. See p.4, Computer display modes.

No picture or no sound

Are the supplied cables connected properly? (The power cable to the display, the VGA cables, the audio cables,...)
Is your PC switched on?
Do you see a black screen and the indicator in front of the monitor lights up green, this means that the display mode is not supported.
Switch your VGA source to a correct mode.

Remote control

If your monitor no longer responds to the remote control, the batteries may be exhausted.

If your problem is not solved:

Switch your monitor off and then on again.
Never attempt to repair a defective monitor yourself.
Check with your dealer or call a TV technician.

Transport

Keep the original packaging to transport the monitor if needed.

End of life directives

Philips is paying a lot of attention to produce environmentally-friendly in green focal areas. Your new monitor contains materials which can be recycled and reused.
At the end of its life specialized companies can dismantle the discarded monitor to concentrate the reusable materials and to minimize the amount of materials to be disposed of.
Please ensure you dispose of your old monitor according to local regulations.

How to dispose of batteries ?

The batteries supplied do not contain the heavy metals mercury and cadmium. Nevertheless in many countries batteries may not be disposed of with your household waste. Please ensure you dispose of batteries according to local regulations.

Miscellaneous

- Ambient temperature: + 5~ + 40°C
- Maximum operating altitude: 2000 m/6562 ft (min. pressure 800h Pa)
- Mains: AC 95-264V 50/60 Hz
- Power consumption: ± 250 W (32") or ± 320 W (42")
- Standby consumption: < 2 W
- Weight (excl. packaging) Display: 53 (32") or 79 (42") Lbs
- Dimensions (wxhxd): Display: 38 x 20,2 x 3,5 inch (32") or 47,8 x 25,9 x 3,5 inch (42")
- Wall mounting bracket included

If this instruction manual does not give an answer or if 'Tips' do not solve your TV problem, you can call your Local Philips Customer or Service Center. See the supplied World-wide guarantee booklet.
Please, have the Model and Product number which you can find at the back of your television set or on the packaging, ready, before calling the Philips helpline (800-531-0039).

4. Mechanical Instructions

Index of this chapter:

Note: Figures below can deviate from the actual situation, due to different set executions.

4.1 Service Positions Monitor

4.1.1 Transport Cushions

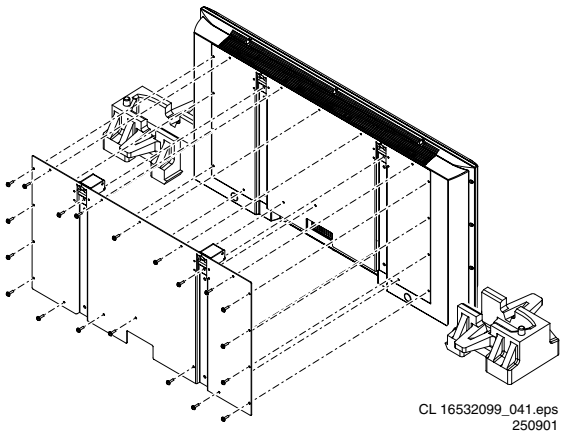


Figure 4-1 Transport cushions

First, put the monitor in its service position. Therefore, disconnect all cables connected to the monitor and take the monitor of the wall (or tabletop stand). Then, place the monitor in the re-enforced transport cushions that function also as service stand (you can order them separately under code 3122 126 40612). See figure "Transport cushions".

Notes:
- There are no special "re-enforced service stands". The cushions used in the factory packaging are already made of reinforced material.
- Always keep in mind that the stands are only designed to keep the monitor in service position as long as the monitor is being serviced. The stands are NOT designed to keep the monitor in the upright position for more then two days.
- After the monitor is serviced, or when nobody is working on the monitor (e.g. in the weekend), it should be removed from the stands and laid down on a cushion or other support system to prevent it from falling.
- Worn out stands should be replaced by new ones (monitor will tilt to much forward).
- Never leave the monitor alone when the stands are not fully pressed on its place.
- It is possible to move the right stand a bit to the right so that you can access the IR-LED and ON/OFF switch, but the monitor can then not be left alone because the stands are NOT designed to carry the weight of the monitor in that position. A better solution to access the IR-LED and/or ON/OFF switch is to make some holes in the stands at the position of the LED and switch. Do not make the holes to big, as this will influence the strength of the stands.

4.1.2 Aluminium Stand:

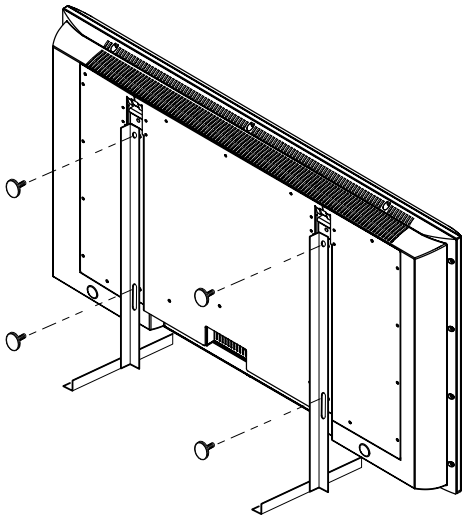


Figure 4-2 Aluminium stand

The aluminium stand (order code 3122 785 90480) can be mounted with the back cover removed or still left on. So, the stand can be used to store products or to do measurements. It is also very suitable to perform duration tests without taking much space, without having the risk of overheating and no risk of products falling. The stand can be mounted and removed quickly and easy with use of the delivered screws that can be tightened and loosened manually without the use of tools. See figure above.

Note: Only use the delivered screws to mount the monitor to the stand.

4.1.3 Foam Stand:

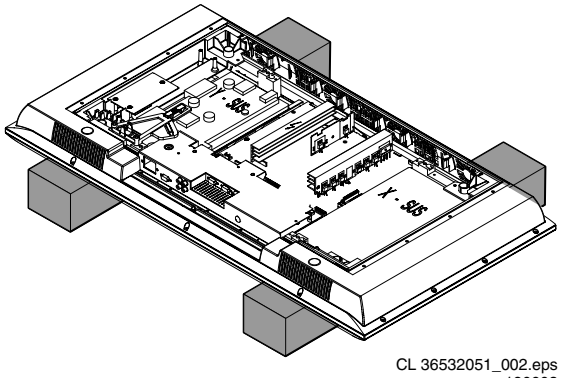


Figure 4-3 Foam stand

The foam stand (order code 3122 785 90580) can be used for all types and sizes of FTVs and LCD TVs and can even be used to e.g. exchange a CRT of a normal TV. By laying the plasma or LCD TV flat on the (ESD protective) foam bars, a stable situation is created to perform measurements and alignments. See figure "Foam stand".
By first placing a mirror flat on the table under the TV you can easily see if something is happening on the screen. The stand is also handy to replace the screen (PDP or LCD).

4.2 Rear Cover Removal

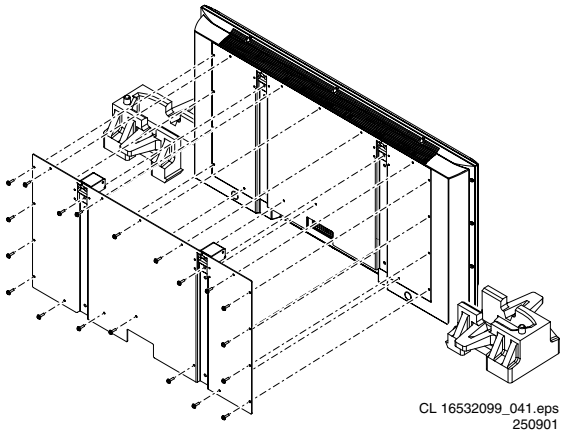


Figure 4-4 Rear cover removal

To be able to access or measure the panels, remove the rear cover (metal back plate):
1. Remove all fixation screws from the back plate, as indicated in figure above (the amount of screws that need to be removed differs from the amount in the figure above).
2. Remove the metal back plate. Make sure that wires and flat foils are not damaged during plate removal.

Warning: make sure that the mains power is disconnected when you remove the metal back plate.

4.3 Service Position Panels

4.3.1 SCAVIO Panel

Solder-side SCAVIO

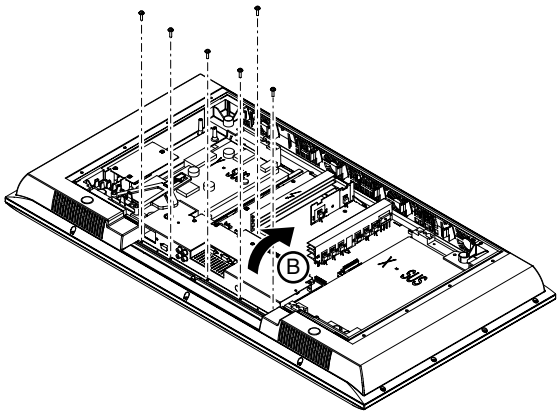


Figure 4-5 Service position SCAVIO (1)

To access the panel:
1. Remove the cables from connectors 0301, 0305, 0320, 0319, and 0388 to the SCAVIO panel.
2. Remove the power cable from the mains power inlet to the power supply (connector 0308).
3. Remove all screws at the bottom.
4. Hold the panel while removing the top screw, in order to prevent that the panel will drop.
5. Take the panel out, and turn it 180 degrees, so that you face the solder side of the SCAVIO panel.
6. Reconnect all cables. Use a standard power cable to connect the mains directly to PSU-connector 0308, and use the 'LED/Switch panel' service kit 3122 785 90410 (as the original cable is too short).

Caution: When measuring, watch out for the 'hot' left heat sink of the PSU!

Another way to measure the SCAVIO panel:
1. Remove all screws at the bottom.
2. Hold the panel while removing the top screw, in order to prevent that the panel will drop.
3. Put a piece of paper (or cardboard) in front of the Power Supply.
4. Take the panel out, and turn it upward [B], so that you face the solder-side of the SCAVIO panel.

Caution: Make sure that the metal connector plate does not touch any 'hot' part of the Power Supply (heatsink).

Component-side SCAVIO

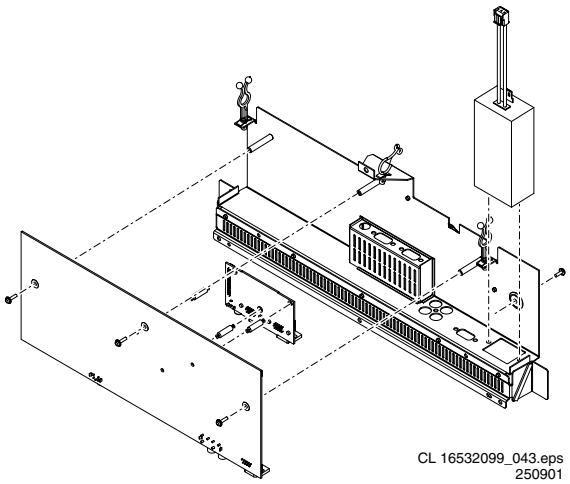


Figure 4-6 Service position SCAVIO (2)

To access the other side of the SCAVIO panel:
1. Disconnect all cables going to the SCAVIO panel.
2. Remove all screws at the connectors of the connector plate, see figure 'Solder-side SCAVIO'.
3. Remove all fixation screws that connect the SCAVIO panel to the connector plate, see figure 'Component-side SCAVIO'.
4. Reconnect the SCAVIO panel, be careful: do not make a short-circuit!

4.3.2 VGA Connector Panel

To remove the VGA Connector Panel:
1. Squeeze the three plastic pins that connect this panel to the SCAVIO board, while you pull it carefully upwards.
2. Unplug the flat cable.

4.3.3 Power Supply Panel

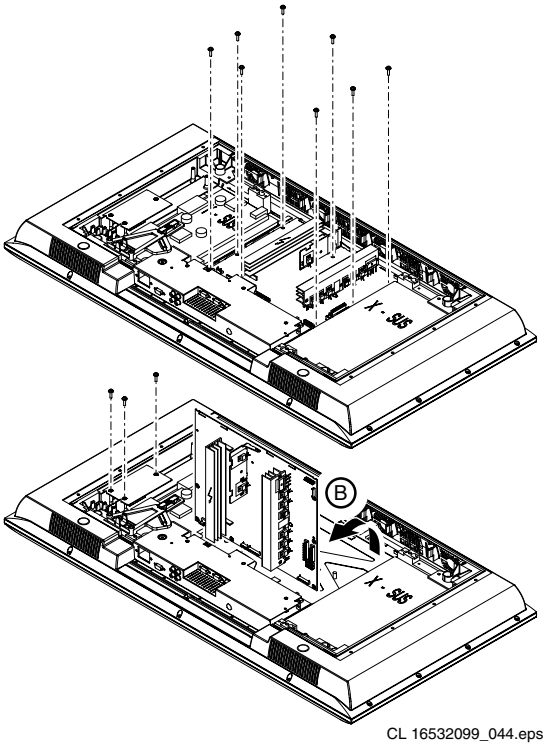


Figure 4-7 Service Position Power Supply

It is possible to perform most measurements from the component level side (thus, how the panel is mounted in the set). However, to reach the copper-side of the Power Supply:

1. Unplug the power.
2. Remove all fixation screws from the Power Supply.
3. Hinge the Power Supply forward, so that you can reach the copper-side. Use a non-conducting part underneath, to support the PWB (e.g. a carton box).
   Caution: make sure that, when you hinge the Power Supply forward, you do not damage the cables. Pay special attention to the flat cable (on connector 0307) and the cable on connector 0306, because they can be easily damaged by the sharp edge of the connector plate.
4. To remove the Power Supply, unplug all cables.
5. Remove the Power Supply.

4.3.4 Audio Amplifier Panel

The solder-side of this panel is directly accessible. To access the component-side, or to remove the whole panel, unscrew the three fixation screws (see figure 'Power Supply Panel'), and (re)move the panel.

4.3.5 LED/Switch Panel and Speakers

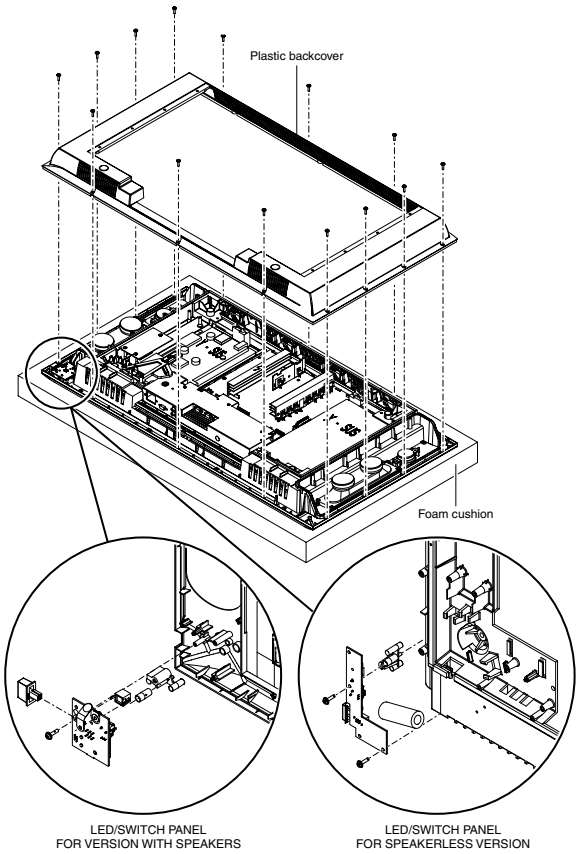


Figure 4-8 Service Position LED/Switch Panel and Speakers

To access or replace the LED/Switch panel and/or speakers:

1. Take the monitor from its service stand, and put it (face down) on a soft surface (blanket, foam cushion or foam stand), to make sure that you do not damage the front glass plate.
2. Unscrew all fixation screws of the plastic back cover.
3. Lift and remove the plastic back cover.
4. You can access now the LED/Switch panel and/or the speakers.

4.3.6 LED/Switch panel

To measure the component-side, or to remove the LED/Switch panel, unscrew one fixation screw (see enlarged part of figure 'LED/Switch Panel and Speakers'), and remove the panel.

4.3.7 Loudspeakers

As soon as you have removed the plastic back cover, you must replace the speaker-box sealing foams (12nc: 3122 358 76221). This, to ensure that the loudspeakers are airtight. Do not stretch the foam during mounting. Pay special attention to the corners, to make sure that the foam is not stretched and that it is pushed in the corners.

4.4 PDP and Glass Plate Replacement

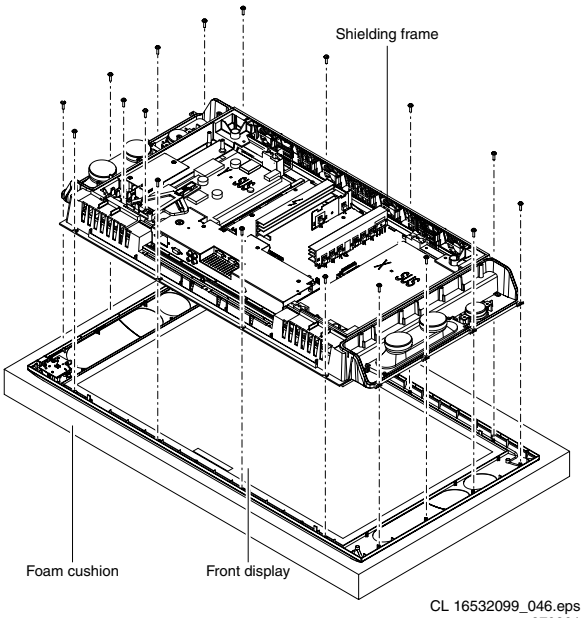


Figure 4-9 Exchanging the glass plate

Exchanging the glass plate

1. Take the monitor from its service stand, and put it (face down) on a soft surface (blanket, foam cushion or foam stand), to make sure that you do not damage the front glass plate.
2. Remove the metal back plate as described in paragraph 'Rear Cover Removal'.
3. Unscrew all fixation screws of the plastic back cover.
4. Lift and remove the plastic back cover.
5. If the triangular shaped cable holder at the left bottom is present, unscrew the fixation screws of the holder at the left bottom, see figure 'Exchange Glass Plate'.
6. Unplug the cable of the LED/Switch panel, connector 0320
7. If the ESM Filter Panel at the left bottom is present, unscrew the fixation screws.
8. Unscrew all fixation screws of the (metallised) shielding frame, see figure 'Exchange Glass Plate'.
9. You can now remove the (metallised) shielding frame, together with the PDP, Audio panel, Power supply and SCAVIO panel attached to it, see figure 'Exchange Glass Plate'.
   Note: To prevent scratches, make sure to put the shielding frame together with the PDP on a soft surface.
10. Replace the glass plate.

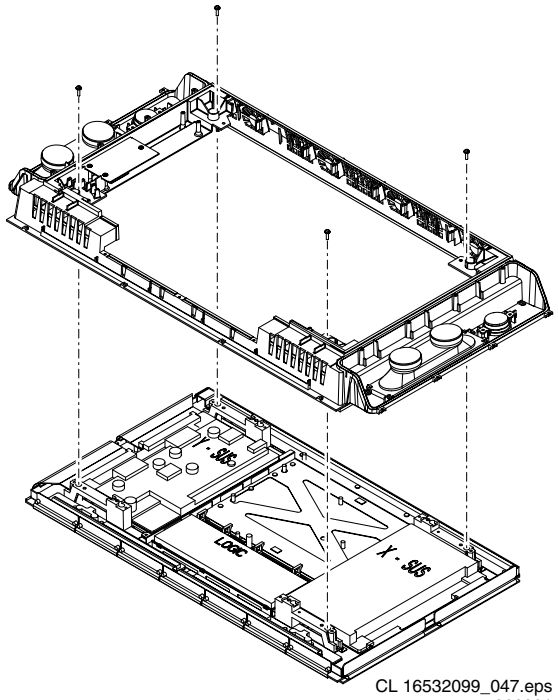


Figure 4-10 Exchanging the PDP

To exchange the PDP panel:

1. Take out the SCAVIO panel and Power Supply panel, as described earlier.
2. Unscrew all fixation screws of the (metallised) shielding frame (two at the top and two at the bottom, see figure 'Exchange PDP').
3. The shielding frame can now be taken off the PDP.
4. Replace the PDP.

4.5 Re-assembly

To re-assemble the whole set, do all processes in reverse order.

Notes:

- You must replace the speaker-box sealing foam, in case the plastic rear cover has been (re)moved.
- While re-assembling, make sure all the cables are in their original position and make sure all the EMC foams are present to ensure 'EMC tightness'.

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points

The chassis is equipped with test points (I- and F-points) printed on the circuit board assemblies. See test point overview in chapter 6.

Perform measurements under the following conditions:
- Service Default Mode.
- Video: colour bar signal (via PC or VGA-generator).
- Audio: 1 kHz, 2 V_pp (via PC or VGA-generator).

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Philips Customer Care Centre (P3C) and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements) and the FTV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.
Minimum requirements: a Pentium Processor, Windows 9x/NT/ 2000/XP, and a CD-ROM drive (see also paragraph 5.4).

5.2.1 Service Default Mode (SDM)

Purpose
- To create a pre-defined setting to get the same measurement results as given in this manual.
- To override SW protections (only when SDM is entered via the "service pins" on connector 0382).
- To start the blinking LED procedure.

Specifications
- All picture settings at 50% (brightness, contrast, etc.).
- Colour temperature is set to "normal".
- Bass, treble and balance at 50%; volume at 25%.
- All service-unfriendly modes (if present) are disabled, like:
- Video blanking,
- Slow de-mute,
- Anti ageing,
- Automatic switch to Standby when no sync signals are received.

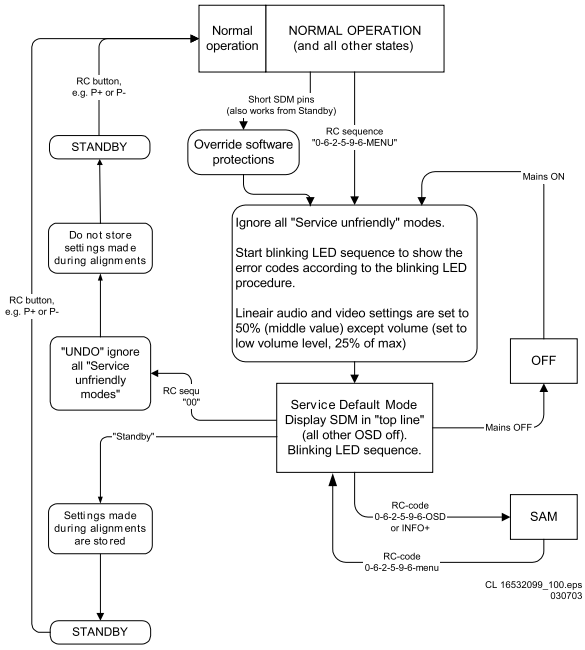


Figure 5-1 CL1SDM Flowchart

How to enter SDM
Use one of the following methods:
- Use the standard RC-transmitter and key in the code **062596**, directly followed by the **MENU** button.
- Short jumpers 1 and 2 of connector 0382 on the SCAVIO panel.

After entering SDM, a blank screen is visible, with SDM in the upper left side for recognition. The Blinking LED procedure is started and will indicate any possible errors via the (orange) front LED.

How to navigate
To toggle to the SAM mode, use a standard customer RC-transmitter and key in the code **062596**, directly followed by the **OSD (i+)** key.

How to exit
Use one of the following methods (the set returns to its last status):
- Switch the set to STANDBY by pressing the power button on the remote control transmitter (if you switch the set "off" by removing the Mains power, the set will return in SDM, when the Mains power is re-applied).
- Use the standard RC-transmitter and key in the code **00**.

5.2.2 Service Alignment Mode (SAM)

Purpose
- To perform (software) alignments.
- Easy way to identify the commercial type number of the set.
- Easy identification of the used software versions.
- To display (or clear) the error code buffer.
- View operational hours.

Specifications
- Operation hours counter.
- Software version reading.
- Error buffer reading and erasing.
- Software alignments.
- Test pattern generation.

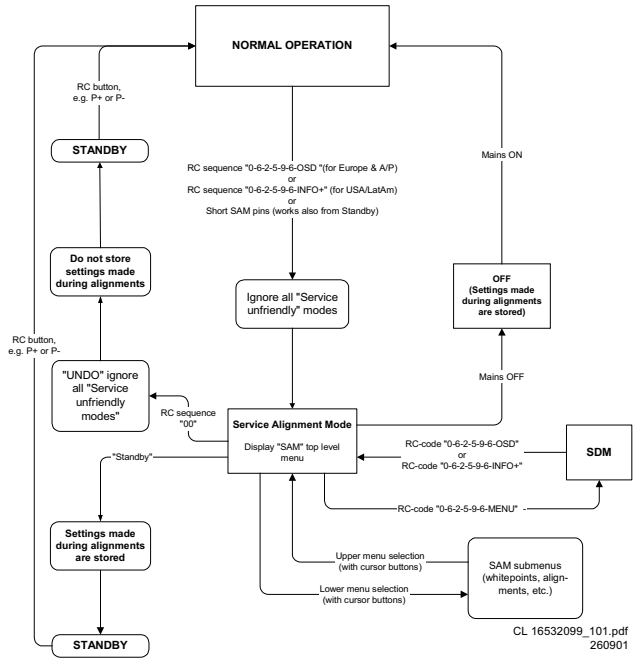


Figure 5-2 SAM Flowchart

How to enter

Use one of the following methods:

- Use a standard RC-transmitter and key in the code **062596** directly followed by the **OSD (i+)** button.
  Note: the OSD (i+) is not available on the original FTV remote control; therefore use another Philips remote control (e.g. MG, EMG or A10).
- Short jumpers 3 and 4 of connector 0382 on the SCAVIO panel.

The following screen is visible:

Table 5-1 SAM Menu "General"

Service Alignment Menu	General
Type Nr. - AG Code	32FD9944/01S (example)
SW Version OTC	AAAABC-X.Y_xxxxx
SW Version PW	AAAABC-X.Y_xxxxx
SW Version EPLD	AAAABC-X.Y_xxxxx
Errors 1	xx xx xx xx xx
Errors 2	xx xx xx xx xx
Operational hours	xx
Reset error buffer	Press OK to reset
Store	Press OK to store

1. **TYPE NR.** Gives the commercial type number of the monitor, e.g. 32FD9944/01S.
2. **AG CODE.** Is not implemented.
3. **SW VERSION OTC** (AAAABC-X.Y-xxxxx).
   Note: You will find details of the latest software versions in the chapter "Software Survey" of the "Product Survey - Colour Television" publication, which is published four times each year.
   - A = the chassis name (FM23 for **all** displays).
   - B = the region (E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM or G = Global).
   - C = the configuration name (B= Basic, E= Enhanced).
   - X = the main software version number.
   - Y = the sub software version number.
   - x = last five digits of 12nc code.
4. **SW VERSION PW** (AAAABC-X.Y-xxxxx). See description above.
5. **SW VERSION EPLD** (AAAABC-X.Y-xxxxx). See description above.
6. **ERRORS 1.** Gives the last five errors of the error buffer. The last detected error is displayed at the most left position. The errors are displayed as 2 digit numbers and separated by a space. When less than 10 errors occurred, the rest of the line(s) is empty. In case of no errors, the text "No Errors" is displayed behind menu item "Errors 1". See paragraph 5.5 for a description.
7. **ERRORS 2.** Gives the first five errors of the error buffer. The last detected error is displayed at the most left position.
8. **OPERATIONAL HOURS.** The Operations Hours indicate the time that the display was active with half an hour resolution. It represents the system hours (OTC), not the PDP hours.
9. **RESET ERROR BUFFER.** Erase the contents of the error buffer. Press "OK" on your remote control to activate. The content of the error buffer is cleared.
10. **STORE.** This will store the performed alignments. Press "OK" on your remote control to activate.
    Note: if you do not want to store the performed alignments, leave the SAM mode via code 0 0 on your remote control. Do not activate the "store" item.

How to navigate

Use one of the following methods:

- Select the sub-menu's (upper line) with the CURSOR LEFT/RIGHT keys on the remote control transmitter.
- Select the menu items with the CURSOR UP/DOWN keys. With the CURSOR LEFT/RIGHT keys it is possible to:
  – Activate the selected menu item.
  – Change the value of the selected menu item.
- To toggle to the SDM mode, use the standard customer RC-transmitter and key in the code **062596**, directly followed by the **MENU** key.

How to exit

Use one of the following methods:

- Switch the set "off" (with the Mains switch or by pulling the Mains cord).
  Note: new alignment settings are always stored, even when item "store" was not activated!
- Switch the set to "standby" by pressing the power button on the remote control transmitter.
  Note: new alignment settings are always stored, even when item "store" was not activated!
- Use the standard RC-transmitter and key in the code **00**.
  Note: new alignment settings are not stored (except when item "store" was activated)!

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer or helpdesk. The service technician can than ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severness of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a read only mode; therefore, modifications in this mode are not possible.

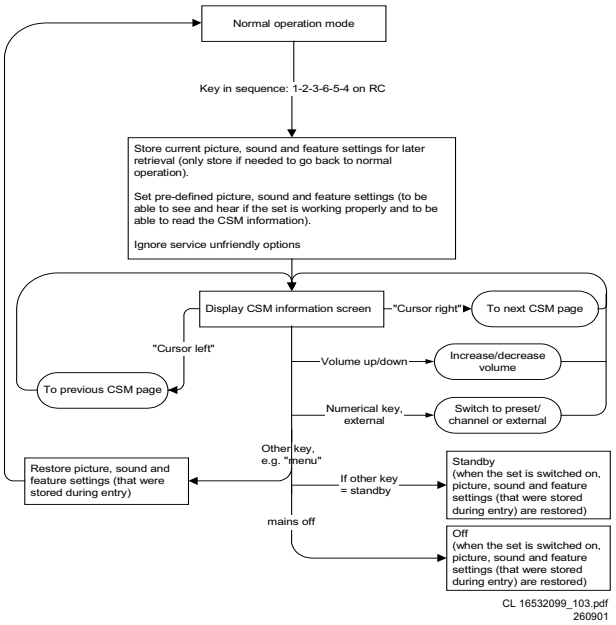


Figure 5-3 CSM Flowchart

How to enter

Use the standard customer RC-transmitter and key in the code **123654**.

When CSM is entered, the values of brightness, contrast, etc. are set to 50% (of max. value), and volume is set to 25%, to ensure that you always have a picture and sound.

After switching "on" the Customer Service Mode, the following screen will appear:

Table 5-2 CSM Menu

Customer Service Menu 1	
1 - Type Nr. - AG Code	32FD9944/01S-AG02 (example)
2 - SW Version OTC	AAAABC-X.Y_xxxxx
3 - SW Version PW	AAAABC-X.Y_xxxxx
4 - SW Version EPLD	AAAABC-X.Y_xxxxx
5 - Code 1	xx xx xx xx xx
6 - Code 2	xx xx xx xx xx
7 - Volume	xx
8 - Brightness	xx
9 - Contrast	xx

	Customer Service Menu 2
10 - Color	xx
11 - Tint	xx
12 - Sharpness	xx
13 - Soundmode	xx
14 - Source	xx
15 - AV Mute	xx

1. **TYPE NR. - AG CODE.** Gives the commercial type number of the monitor, e.g. xxFD9954/01S. The AG CODE is not implemented.
2. **SW VERSION OTC** (AAAABC-X.Y-xxxxx)
   Note: You will find details of the latest software versions in the chapter "Software Survey" of the "Product Survey - Colour Television" publication, which is published four times each year.
   - A = the chassis name (FM23 for **all** displays).
   - B = the region (E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM or G = Global).
   - C = the configuration name (B= Basic, E= Enhanced).
   - X = the main software version number.
   - Y = the sub software version number.
   - x = last five digits of 12nc code.
3. **SW VERSION PW** (AAAABC-X.Y-xxxxx). See description above.
4. **SW VERSION EPLD** (AAAABC-X.Y-xxxxx). See description above.
5. **CODE 1.** Gives the last five errors of the error buffer. The last detected error is displayed at the most left position. The errors are displayed as 2 digit numbers and separated by a space. When less than 10 errors occurred, the rest of the line(s) is empty. In case of no errors, the text NO ERRORS is displayed behind menu item CODE 1. See paragraph "Error Buffer" for a description.
6. **CODE 2.** Gives the first five errors of the error buffer. The last detected error is displayed at the most left position.
7. **VOLUME.** Gives the last volume status for the selected source, as set by the customer.
8. **BRIGHTNESS.** Gives the last brightness status for the selected source, as set by the customer.
9. **CONTRAST.** Gives the last contrast status for the selected source, as set by the customer.
10. **COLOR** (not present in *Basic* configuration). Gives the last colour status for the selected source, as set by the customer.
11. **TINT** (only for *NTSC Enhanced* configuration). Gives the last tint status for the selected source, as set by the customer.
12. **SHARPNESS.** Gives the last sharpness status for the selected source, as set by the customer.
13. **SOUND MODE.** Gives the selected sound mode, as set by the customer.
14. **SOURCE.** Gives the selected source, as set by the customer.
15. **AV MUTE.** Indicates if AV Mute is "on" or "off".

How to navigate

Use one of the following methods:

- Switch to the other CSM page with the "cursor left/right" keys on the remote control.
- You can increase/decrease volume with the "volume up/down" keys on the remote control.
- You can switch to another source with the "num / ext" keys on the remote control.

How to exit

Use one of the following methods:

- Press the MENU key of the remote control transmitter.
- Switch the set to "standby" with the Power switch on the remote control.
- Switch the set "off" with the Mains power switch on the set.

5.3 Problems and Solving Tips (Related to CSM)

5.3.1 Picture Problems

Note: Below described problems are all related to the monitor settings. The procedures to change the value (or status) of the different settings are described.

Picture too dark or too bright

Increase/decrease the "brightness" and/or the "contrast" value when the picture improves after you have switched on the Customer Service Mode. The new value is automatically stored.

White line around picture elements and text
Decrease the "sharpness" value when the picture improves after you have switched on the Customer Service Mode. The new value is automatically stored.

Snowy picture and/or unstable picture
A scrambled or decoded signal is received.

Black and white picture
Increase the "colour" value when the picture improves after you have switched on the Customer Service Mode. The new value is automatically stored.

Menu text not sharp enough
Decrease the "contrast" value when the picture improves after you have switched on the Customer Service Mode. The new value is automatically stored.

5.3.2 Sound Problems

No sound from left or right speaker
Check item VOLUME in the CSM mode. If value is low, increase the volume level. The new value is automatically stored.

No sound or sound too loud (after channel change/ switching on)
Increase/decrease the "volume" level when the volume is OK after you switched on the CSM. The new value is automatically stored.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (Dealer Service Tool), which allows faster and more accurate diagnostics. ComPair has three big advantages:
- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I2C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I2C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based faultfinding program, and an RS232 cable between PC and the (defective) product.

The ComPair faultfinding program is able to determine the problem of the defective monitor. ComPair can gather diagnostic information in two ways:
- **Automatic** (by communication with the monitor): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I2C level. ComPair can send and receive commands to the micro controller of the monitor, and so can access the I2C bus of the monitor. In this way, it is possible for ComPair to communicate (read and write) to devices on the I2C busses of the FTV monitor.
- **Manually** (by asking questions to you): Automatic diagnosis is only possible if the micro controller of the monitor is working correctly and only to a certain extend. When this is not the case, ComPair will guide you through the faultfinding tree by asking you questions (e.g. *Does the screen give a picture? Click on the correct answer: YES / NO*) and showing you examples (e.g. *Measure test-point F7 and click on the correct oscillogram you see on the oscilloscope*). You can answer by clicking on a link (e.g. text or a waveform picture) that will bring you to the next step in the faultfinding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Beside fault finding, ComPair provides some additional features like:
- Software upgrading (upload possible to OTC and PW Scaler).
- Emulation of the (European) Dealer Service Tool (DST).
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink.
  Example: Measure the DC-voltage on capacitor C2228 (Schematic/Panel) of the SCAVIO panel. Click on the "Panel" hyperlink to automatically show the PWB with a highlighted capacitor C2568. Click on the "Schematic" hyperlink to automatically show the position of the highlighted capacitor.

5.4.3 How to Connect

1. First, install the ComPair Browser software on your PC (read the installation instructions carefully).
2. Connect an RS232 interface cable between a free serial (COM) port on your PC and the RS232 connector on the plasma monitor.
3. Switch the plasma monitor "off" and "on" again (with the Mains switch).
4. Start the ComPair program and follow the instructions.

Note: once the set is in ComPair mode, the front LED will blink red, at a frequency of 0.3 Hz.

5.4.4 How to Order

ComPair order codes:
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (update): 3122 785 60070.
- SearchMan32 CD (update): 3122 785 60080 (year 2002), 3122 785 60120 (year 2003). If you encounter any problems, contact your local support desk.

Note: The RS232 cable is not included. It is a standard cable (9p sub-D male-to-female) that can be obtained by a computer store. It is supplied however with the ComPair interface (4822 727 21631), necessary for servicing other Philips TVs.

5.5 Error Buffer

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right. When an error occurs that is not yet in the error code buffer, it is written at the left side and all other errors shift one position to the right.

5.5.1 How to Read the Error Buffer

Use one of the following methods:
- On screen via the SAM (only if you have a picture). Examples:
  - Errors: **6 0 0 0 0,** error code 6 is the last and only detected error.

  - Errors: **9 6 0 0 0,** error code 6 was first detected and error code 9 is the last detected (newest) error.
- Via the blinking LED procedure (when you have no picture). See paragraph "The Blinking LED Procedure".
- Via ComPair.

5.5.2 How to Clear the Error Buffer

The error code buffer is cleared in the following cases:

- By activation of the RESET ERROR BUFFER command in the SAM menu.
- When you transmit the code **062599** with a standard remote control transmitter.

5.5.3 Error Codes

Table 5-3 Error code overview

Error	Device	Description	Item	Diagr.
1	TEA6422D	Audio switch (only Enhanced)	7798	SC13
2	MSP3451G	Sound processor	7812	SC14
3	PCF8574-SCAVIO	I/O expander SCAVIO	7540	SC8
4	PCF8591	AD-DA expander	7530	SC8
5	FS6377	Clock generator	7570	SC9
6	PCF8574-PSU	I/O expander PSU	7370	P3
7	24C16 OTC	NVM OTC	7430	SC7
8	24C16 PW	NVM PW	7580	SC9
9	SAA7118	Video decoder (only Enhanced)	7225	SC5
10	AD9887	ADC/TMDS receiver	7170	SC4
11	SDA9400	De-interlacer (only Enhanced)	7280	SC5
12	EP1K30QC	EPLD processor	7656	SC11
13	PDP	Display I2C error		
14	PDP H2-version (FHP)	The "high brightness" mode (only for H2) does not function		
15	LM75A	Temperature sensor I2C error (only for 37-inch)	7372	P3
20	Download comm.	Errors during downloading		
21	CSP comm.	CSP time-out error		
30	PDP	Display HW error		
31	PDP	Display warning code (e.g. loose connector or defective PSU)		
40	Temperature alarm	Detection of over-temperature		
70	V_s overvoltage	Overvoltage on V_s, V_a, +3V3, +5V or a combination	7341	P3
71	V_s undervoltage	Undervoltage on V_s	7308A/B	P3
72	V_a undervoltage	Undervoltage on V_a	7308C/D	P3
73	+5V undervoltage	Undervoltage on +5V	7330A/B	P3
74	+3V3 undervoltage	Undervoltage on +3V3	7330C/D	P3
75	DC-PROT	Audio amplifier protection	7362	P3
76	TEMP-PSU	Over-temperature in PSU	7366A	P3
77	Protection with reason unknown	No valid protection can be read, but protection is active (PSU)		
78	Protection after several retries	PW Scaler will not start comm. with OTC after several retries		
9x	OTC	Internal OTC error (replace OTC)	7383	SC7

Notes:
- In case of non-intermittent faults, clear the error buffer before you begin the repair. This to ensure that old error codes are no longer present.
- If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

5.6 The Blinking LED Procedure

Via this procedure, you can make the contents of the error buffer visible via the front LED (orange colour). This is especially useful when there is no picture. When no errors are present, the LED will stay green.

When the SDM is entered, or when code **062500** is entered with the remote control, the LED will blink the contents of the error-buffer.

Error-codes ≥ 10 are shown as follows:
1. "n" long blinks of 750 ms, which is/are an indication of the decimal digit,
2. a pause of 1.5 s,
3. "n" short blinks (n = 1-9),
4. when all the error-codes are displayed, the sequence finishes with a LED blink of 3 s,
5. the sequence starts again.

Example of error buffer: **12 9 6 0 0**
After entering SDM:
1. 1 long blink of 750 ms followed by a pause of 1.5 s,
2. 2 short blinks followed by a pause of 3 s,
3. 9 short blinks followed by a pause of 3 s,
4. 6 short blinks followed by a pause of 3 s,
5. 1 long blink of 3 s to finish the sequence,
6. the sequence starts again.

5.7 Protections

You can read the error codes of the error buffer via the service menu (SAM), the blinking LED procedure, or via ComPair. If a fault situation is detected an error code will be generated and if necessary, the set will be put in the protection mode. Blinking of the red LED at a frequency of 5 Hz indicates the protection mode.
In some error cases, the microprocessor does not put the set in the protection mode. The error codes are indicated by an orange front LED.

To get a quick diagnosis the chassis has three service modes implemented:
- The Customer Service Mode (CSM): easy way to read out the status of the set.
- The Service Default Mode (SDM): start-up of the set in a predefined way.
- The Service Alignment Mode (SAM): adjustment of the set via a menu and with the help of test patterns.

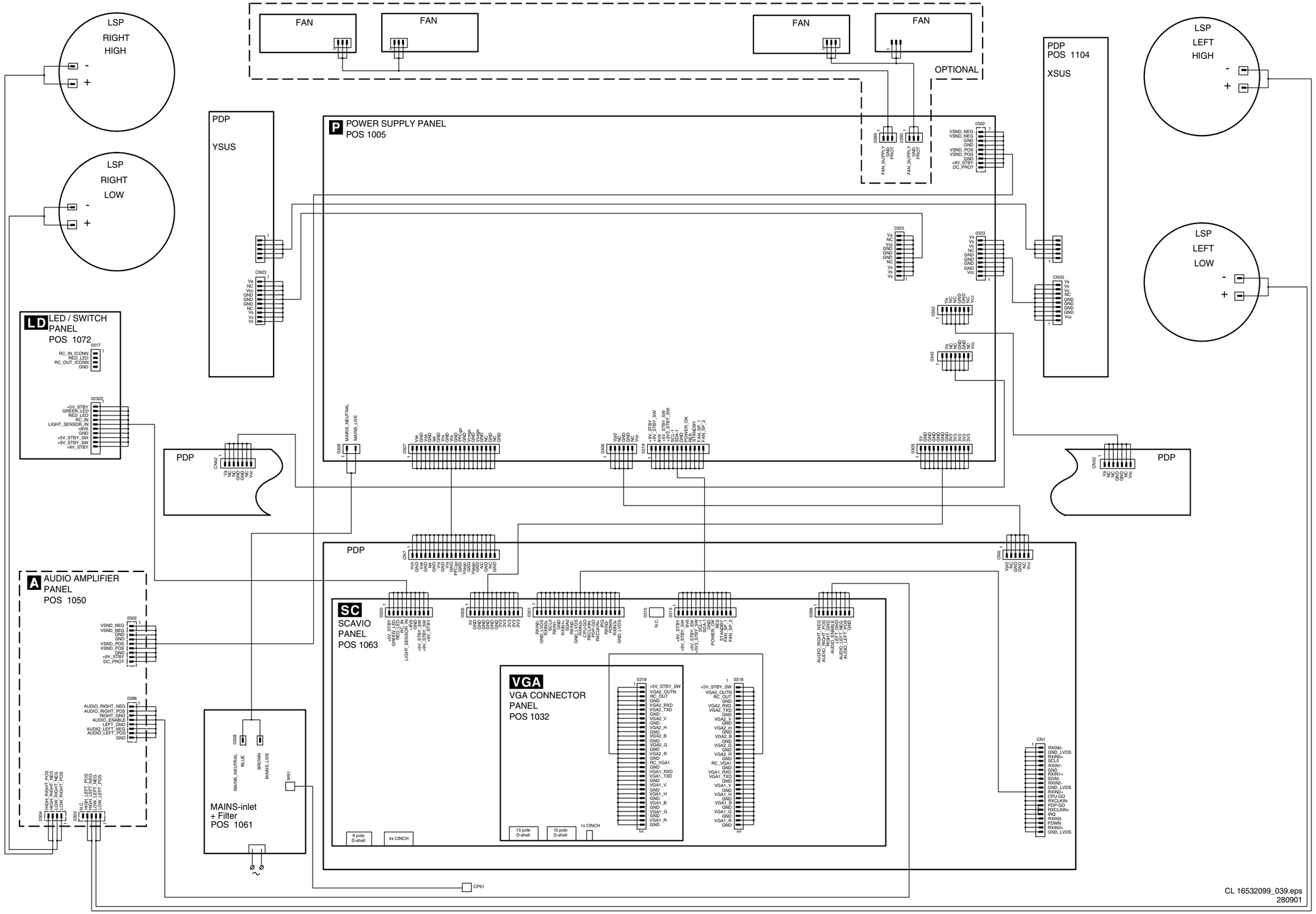
5.8 Repair Tips

Below some failure symptoms are given, followed by a repair tip.
- **Error code indicates an under- or over voltage protection (errors 70 - 74).** Possible causes:
  – A short-circuit present on PSU.
  – A short-circuit present in PSU load circuit.
  – The converter is not functioning (no start-up, or non short-circuit failure).
- **Set starts up, but switches "off" soon.**
  1. Check the PSU outputs. If no output at all, verify the Power Factor Corrector (= PFC or pre-conditioner) e.g. the relays. When PFC is not switching, the LLC is actively held "off".
  2. If the PFC works, check the V_cego.
  3. If V_cego is high, check V_s on the LLC (Vs_unsw).
  4. If there is no V_s, check pin 15.
  5. If the voltage is OK, check pins 12 and 14.
  6. If there are no pulses, check controller pin 10.
  7. If pin 10 < 1 V, the IC is probably defect.
- **If fuse 1004 (diagram P6) is blown.** Check items 7005 and 7006. If **one** of them is defect, **replace both**!
- **If fuse 1400 (diagram P2) is blown.** Check diode bridge 6600, diodes 6605 and 6606, and MOSFET 7610 (diagram P5).
- **The set does not react on the Remote Control Transmitter.** If the monitor is set (by accident or deliberate) in ICONN-mode (via SAM - Options), and there is no ICONN-Box connected, the RC-signal line to the OTC is interrupted. This can be solved by connecting pin 8 and 9 of the RS232 connector at the rear of the monitor.

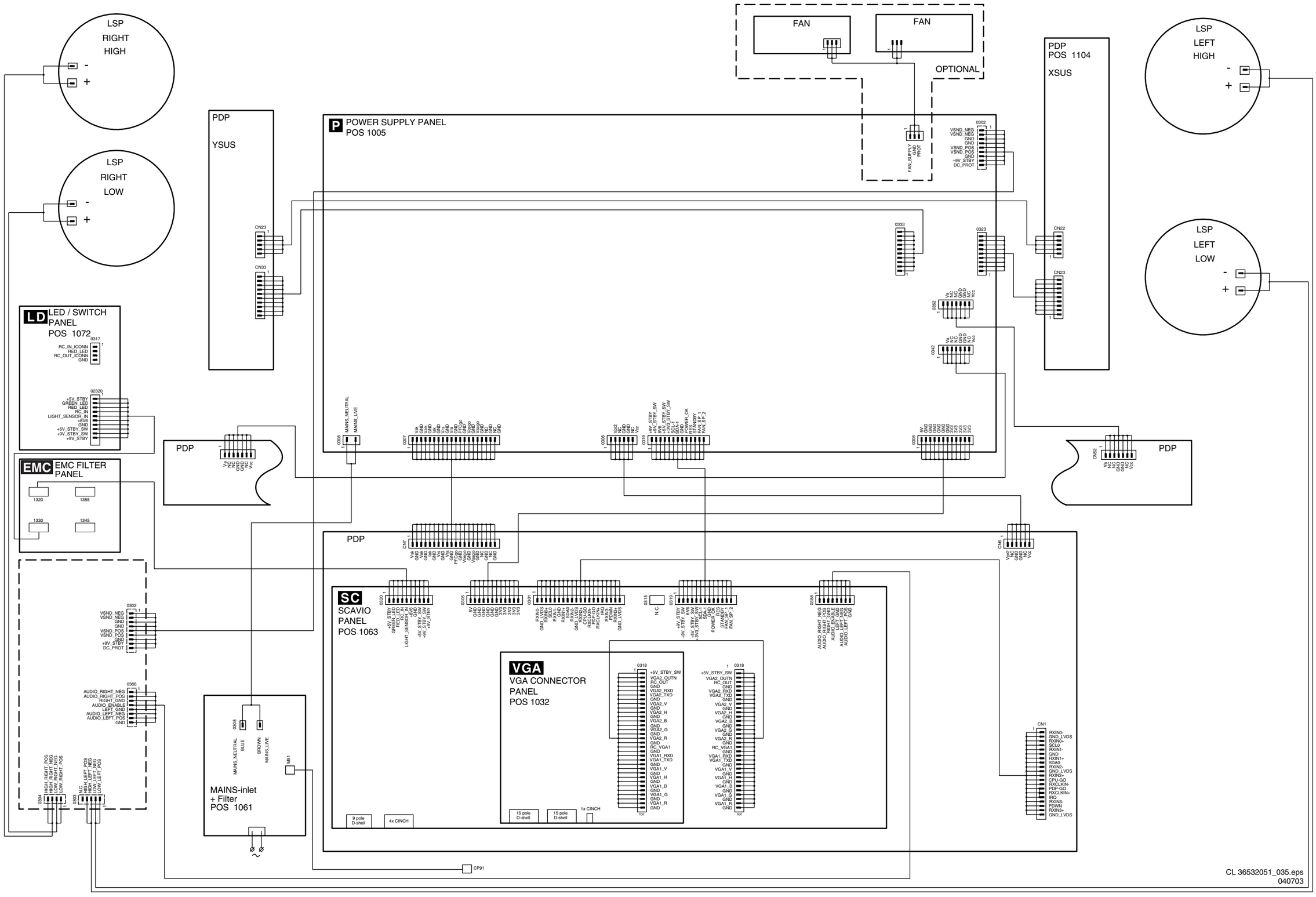
Personal Notes:

6. Block Diagrams, Testpoint Overview, and Waveforms

Wiring Diagram (FM23 AC/FM24 AB)



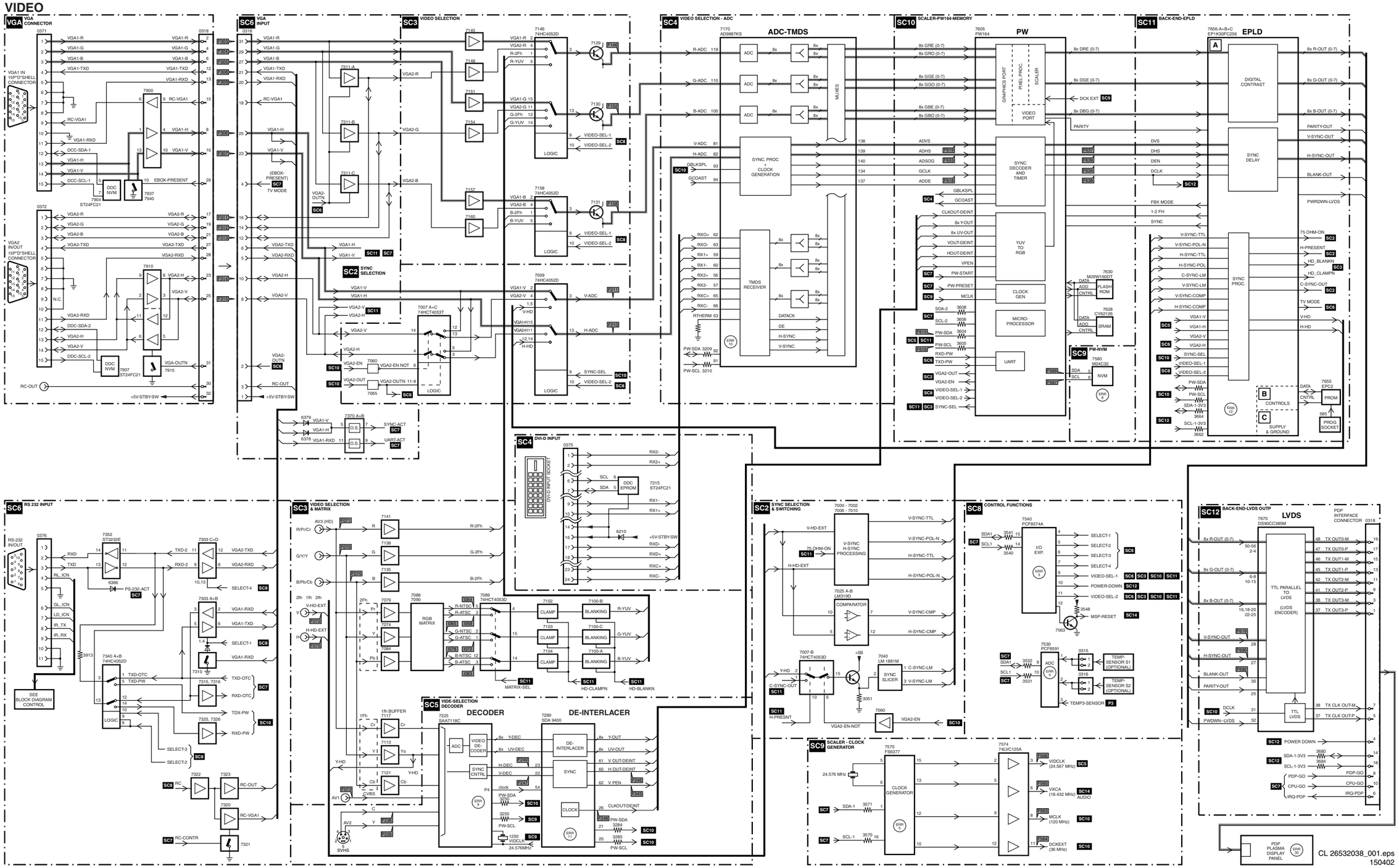
Wiring Diagram (FM33 AA)



CL 36532051_035.eps
040703

Block Diagram Video (FM23 AC/FM24 AB/FM33 AA)

VIDEO



Testpoint Overview: SCAVIO Panel

F070 C1 F071 C1 F072 C1 F073 C1 F074 C1 F075 C1 F076 C1 F089 B1 F146 B4 F152 B4 F158 B4 F162 C4 F170 C5 F171 C4 F172 C3 F173 C3 F174 C4 F175 C4 F176 C4 F177 C4 F178 C3 F180 C3 F181 C3 F196 B4 F197 B4 F198 C5 F199 C4

F201 C5 F202 B4 F203 C5 F210 C3 F211 C3 F216 C3 F220 C3 F221 B2 F222 B3 F223 B3 F224 C3 F225 A1 F226 A1 F227 A1 F228 A1 F229 A1 F230 A1 F231 A1 F232 A1 F233 A1 F234 C2 F235 C2 F236 C3 F237 B3 F240 B3 F241 B3 F242 B3

F245 B5 F246 B5 F247 B5 F249 B3 F250 B2 F251 B2 F260 C2 F261 C3 F262 C3 F263 B3 F264 C3 F265 C3 F266 C3 F267 C3 F268 B3 F269 B3 F270 C3 F271 C3 F272 C3 F273 C3 F274 C3 F275 B3 F276 B3 F277 B3 F278 A3 F279 C3 F280 C3 F281 B4 F282 A3 F283 A3 F284 B3 F285 B3 F286 B3 F287 B3 F288 A3 F289 B3 F290 B3 F291 A4 F292 B3 F293 B4 F294 A3 F295 B4 F296 B4 F297 C3 F298 C3 F299 C3 F300 C3 F301 C3 F303 C3 F304 C3 F305 C3 F306 C3 F307 C3 F308 C3 F309 C3 F310 C3 F311 A3 F312 B3 F313 B3 F314 B3 F315 B2

F316 B3 F317 B3 F318 B3 F319 A2 F320 C8 F321 C8 F322 C8 F323 B3 F324 A5 F325 A2 F326 B2 F327 C8 F328 C8 F329 C8 F330 C8 F331 C8 F332 B3 F333 A3 F334 A3 F335 A3 F336 A3 F337 A3 F338 A3 F339 A3 F340 A3 F341 A3 F342 A3 F343 A3 F344 B6 F345 B6 F346 B7 F347 B7 F348 B7 F349 B7 F350 B6 F351 B6 F352 A8 F353 B7 F354 C7 F355 C7 F356 C8 F357 C7 F358 A8 F359 C8 F360 C7 F361 C8 F362 C8 F363 B7 F364 B7 F365 C8 F366 B7

F391 B7 F392 B7 F393 B7 F394 B7 F395 B7 F396 B7 F397 B7 F398 B7 F399 B7 F400 B7 F401 B7 F402 B7 F403 B7 F404 B7 F405 B7 F406 B7 F407 B7 F408 B7 F409 B7 F410 B7 F411 B7 F412 B7 F413 B7 F414 B7 F415 B7 F416 B7 F417 B7

F418 B7 F419 B7 F420 B8 F421 B7 F422 B8 F423 C7 F424 B7 F425 B6 F426 C6 F427 A7 F428 A7 F429 C8 F430 B6 F431 B7 F432 B8 F433 B8 F434 B8 F435 B8 F436 B8 F437 B8 F438 B8 F439 B8 F440 B8 F441 B8 F442 B8 F443 B8 F444 B8 F445 B8 F446 B8 F447 B8 F448 B8 F449 B8 F450 B8 F451 B8 F452 A8 F453 A8 F454 A8 F455 A8 F456 B8 F457 B8 F458 B8 F459 B8 F460 B8 F461 B8 F462 B8 F463 B8 F464 B8 F465 B8 F466 B8

F467 B8 F468 B8 F469 B8 F470 B8 F471 B8 F472 B8 F473 B8 F474 B8 F475 B8 F476 B8 F477 C8 F478 B8 F479 C8 F480 B8 F481 B8 F482 B8 F483 B8 F484 B8 F485 B8 F486 B8 F487 B8 F488 B8 F489 B8 F490 B7 F491 B8 F492 B8 F493 B8 F494 B8

F495 B8 F496 B8 F497 A8 F498 B7 F499 B7 F500 B7 F501 B7 F502 B7 F503 B8 F504 B8 F505 B8 F506 B8 F507 B8 F508 B8 F509 B8 F510 B8 F511 B8 F512 B8 F513 B8 F514 B8 F515 B8 F516 B8 F517 B8 F518 B8 F519 B8 F520 B8 F521 B8 F522 B8 F523 B8 F524 B8 F525 B6 F526 B6 F527 A2 F528 A2 F529 A7 F530 A8 F531 A8 F532 A8 F533 A8 F534 A8 F535 A8 F536 A8 F537 A8 F538 A8 F539 A8 F540 A7

F542 A7 F543 A7 F544 A7 F545 A7 F546 A2 F547 A5 F548 A2 F549 A2 F550 A3 F551 A3 F552 A3 F553 A3 F554 A3 F555 A3 F556 A3 F557 A3 F558 A3 F559 A3 F560 A4 F561 A4 F562 A3 F563 A4 F564 A4 F565 A4 F566 A4 F567 B5 F568 A5

F569 A5 F570 A5 F571 A5 F572 A5 F573 A5 F574 A5 F575 A5 F576 A5 F577 A5 F578 A5 F579 A5 F580 A5 F581 A5 F582 A5 F583 A4 F584 A4 F585 A4 F586 A4 F587 A4 F588 A4 F589 A4 F590 A4 F591 A5 F592 A5 F593 A5 F594 A5 F595 A5

F596 A5 F597 A5 F598 A5 F599 A5 F600 A5 F601 A5 F602 A5 F603 A5 F604 A5 F605 A5 F606 A4 F607 A4 F608 A4 F609 A4 F610 A4 F611 A4 F612 A4 F613 A4 F614 A6 F615 A7 F616 A7 F617 A5 F618 B4 F619 B5 F620 B5 F621 B4 F622 A5

F623 B6 F624 B5 F625 B5 F626 B5 F627 A5 F628 A4 F629 A5 F630 A5 F631 A5 F632 A5 F633 B5 F634 A6 F635 B5 F636 B6 F637 A6 F638 A7 F639 B6 F640 A8 F641 A8 F642 A8 F643 A7 F644 A8 F645 A7 F646 A7 F647 A6 F648 A6 F649 A6 F650 A6 F651 A6 F652 A6 F653 A6 F654 B8 F655 A7 F656 A7 F657 A8 F658 A8 F659 A8 F660 B6 F661 B5 F662 B5 F663 A6 F664 A6 F665 A6 F666 A6 F667 A6 F668 A6 F669 A6 F670 A6 F671 A6 F672 A6 F673 A6 F674 A6 F675 A6 F676 A6 F677 A6 F678 A6 F679 A6 F680 A7 F681 A6 F682 A6 F683 A6 F684 A6 F685 A6 F686 A6 F687 A6 F688 A6 F689 A6 F690 A6 F691 A6 F692 A6 F693 A6 F694 A6 F695 A6 F696 A6 F697 A6 F698 A6 F699 A6 F700 A6 F701 A6 F702 A6 F703 A6 F704 A6 F705 A6 F706 A6 F707 A6 F708 A6 F709 A6 F710 C6 F711 C7 F712 C7 F713 C7 F714 C7 F715 C7 F716 C7 F717 C1 F718 C2 F719 C2 F720 C2 F721 C1 F722 C1 F723 B7 F724 C6 F725 C6 F726 A6 F727 A6 F728 A6 F729 A6 F730 A6 F731 A6 F732 A6 F733 A6 F734 A6 F735 A6 F736 A6 F737 A6 F738 A6 F739 A6 F740 A6 F741 A6 F742 A6 F743 A6 F744 A6 F745 A6 F746 A6 F747 A6 F748 A6 F749 A6 F750 A6 F751 A6 F752 A6 F753 A6 F754 A6 F755 A6 F756 A6 F757 A6 F758 A6 F759 A6 F760 A6 F761 A6 F762 A6 F763 A6 F764 A6 F765 A6 F766 A6 F767 A6 F768 A6 F769 A6 F770 A6 F771 A6 F772 A6 F773 A6 F774 A6 F775 A6 F776 A6 F777 A6 F778 A6 F779 A6 F780 A6 F781 A6 F782 A6 F783 A6 F784 A6 F785 A6 F786 A6 F787 A6 F788 A6 F789 A6 F790 A6 F791 A6 F792 A6 F793 A6 F794 A6 F795 A6 F796 A6 F797 A6 F798 A6 F799 A6 F800 A6 F801 A6 F802 A6 F803 A6 F804 A6 F805 A6 F806 A6 F807 A6 F808 A6 F809 A6 F810 A6 F811 A6 F812 A6 F813 A6 F814 A6 F815 A6 F816 A6 F817 A6 F818 A6 F819 A6 F820 A6 F821 A6 F822 A6 F823 A6 F824 A6 F825 A6 F826 A6 F827 A6 F828 A6 F829 A6 F830 A6 F831 A6 F832 A6 F833 A6 F834 A6 F835 A6 F836 A6 F837 A6 F838 A6 F839 A6 F840 A6 F841 A6 F842 A6 F843 A6 F844 A6 F845 A6 F846 A6 F847 A6 F848 A6 F849 A6 F850 A6 F851 A6 F852 A6 F853 A6 F854 A6 F855 A6 F856 A6 F857 A6 F858 A6 F859 A6 F860 A6 F861 A6 F862 A6 F863 A6 F864 A6 F865 A6 F866 A6 F867 A6 F868 A6 F869 A6 F870 A6 F871 A6 F872 A6 F873 A6 F874 A6 F875 A6

F810 C1 F811 C1 F812 C1 F813 C1 F814 C1 F815 C1 F816 C1 F817 C1 F818 C1 F819 C1 F820 C1 F821 C1 F822 C1 F823 C1 F824 C1 F825 C1 F826 C1 F827 C1 F828 C1 F829 C1 F830 C1 F831 C1 F832 C1 F833 C1 F834 C1 F835 C1 F836 C1 F837 C1 F838 C1 F839 C1 F840 C1 F841 C1 F842 C1 F843 C1 F844 C1 F845 C1 F846 C1 F847 C1 F848 C1 F849 C1 F850 C1 F851 C1 F852 C1 F853 C1 F854 C1 F855 C1 F856 C1 F857 C1 F858 C1 F859 C1 F860 C1 F861 C1 F862 C1 F863 C1 F864 C1 F865 C1 F866 C1 F867 C1 F868 C1 F869 C1 F870 C1 F871 C1 F872 C1 F873 C1 F874 C1 F875 C1

I015 B3 I016 B5 I017 A1 I018 B1 I019 B1 I020 B1 I021 A1 I022 A1 I023 B1 I024 B1 I025 A1 I026 A2 I027 A1 I028 B8 I029 A1 I030 B1 I031 B1 I032 B1 I033 A1 I034 C1 I035 C1 I036 A5 I037 A5 I038 A2 I039 A1 I040 A2 I041 A2 I050 C2 I051 C2

I052 C2 I053 B2 I054 B1 I055 B1 I056 C1 I057 C1 I058 B1 I059 C1 I060 C1 I061 B2 I062 C2 I063 C1 I064 B1 I065 B1 I066 C1 I067 C1 I068 C1 I069 B2 I070 C1 I071 C2 I072 B2 I073 B2 I074 B2 I075 B2 I076 C2 I077 C1 I078 B1

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I115 A2 I116 B1 I117 B2 I118 B2 I119 B2 I120 A2 I121 A2 I122 B1 I123 B2 I124 B2 I125 B2 I126 A2 I127 A2 I128 B2 I129 B3 I130 B2 I131 B1 I132 B1 I133 B1 I134 B2 I135 B2 I137 B1 I138 B2 I139 B2 I140 B2 I141 B2 I142 B2 I143 B2

I144 B2 I145 B2 I146 B2 I147 A3 I148 B2 I149 A3 I150 B1 I151 B4 I152 C4 I153 C4 I154 C4 I155 B4 I156 B4 I157 B4 I158 C4 I159 C4 I160 C3 I161 C3 I165 C3 I166 C3 I200 C3 I201 C2 I202 C2 I203 C3 I204 A3 I205 B2 I206 B2

I207 C3 I218 B2 I219 B8 I220 B2 I221 C8 I222 C8 I223 C8 I224 B2 I225 B8 I226 C8 I227 C8 I228 B8 I229 C8 I230 A8 I231 B8 I232 A8 I233 C8 I234 C8 I235 C8 I236 C8 I237 C8 I238 B8 I239 C8 I240 B8 I241 A8 I242 A3 I243 A3

I244 A3 I245 C8 I246 C8 I247 A3 I248 A3 I249 C8 I250 A3 I251 A3 I252 C8 I253 A3 I254 A3 I255 A3 I256 C8 I257 C8 I258 B3 I259 A3 I260 A3 I261 A3 I262 A3 I263 A3 I264 A4 I265 A3 I266 B3 I267 A4 I268 A4 I269 A4 I270 B4

I271 B3 I272 B4 I273 B7 I274 A4 I275 B4 I276 B3 I277 B6 I278 A3 I279 C8 I280 C8 I281 B4 I282 A3 I283 A3 I284 B6 I285 B3 I286 B3 I287 B3 I288 A3 I289 B6 I290 B6 I291 B3 I292 B6 I293 B4 I294 B3 I295 B8 I296 B5 I297 C8

I298 C8 I299 C8 I300 C8 I301 C8 I303 A3 I344 B6 I345 B6 I346 B7 I347 B7 I348 B7 I349 B7 I350 B6 I351 B6 I352 A8 I353 B7 I354 C7 I355 C7 I356 C8 I357 C7 I358 A8 I359 C8 I360 C7 I361 C8 I362 C8 I363 B7 I364 B7 I365 C8 I366 B7

I400 A7 I401 A3 I402 A3 I403 A3 I404 C8 I405 A3 I406 A4 I407 A4 I408 A2 I409 A2 I410 A8 I411 A8 I412 A8 I413 A8 I414 A8 I415 A3 I416 A8 I417 A8 I418 A8 I419 A8 I420 A8 I421 A8 I422 A8 I423 A8 I424 A8 I425 A8 I426 A8 I427 A8 I428 A8 I429 A8 I430 A8 I431 A8 I432 A8 I433 A8 I434 A8 I435 A8 I436 A3

I470 B6 I471 A5 I475 B7 I476 A6 I480 A5 I481 A6 I482 A5 I485 A6 I486 A5 I487 A5 I488 A5 I489 A5 I490 A5 I491 A5 I492 A5 I493 A5 I494 A5 I495 A5 I496 A5 I497 A5 I498 A5 I499 A5 I500 A5 I501 A7 I502 A8 I503 A8 I504 A7 I505 A7 I506 A7 I507 A7 I508 A7 I509 A7 I510 B3 I511 C7 I512 C7 I513 C7 I514 C7 I515 C7 I516 C7 I517 C7 I518 C7 I519 C7 I520 C7 I521 C7 I522 C7 I523 C7 I524 C7 I525 C7 I526 C7 I527 C7 I528 C7 I529 C7 I530 C7 I531 C7 I532 C7 I533 C1 I534 C1 I535 C6 I536 C6 I537 C6 I538 C1

I539 C1 I540 C1 I541 C7 I542 C7 I543 C7 I544 C1 I545 C7 I546 C7 I547 C7 I548 C7 I549 C6 I550 C7 I551 C7 I552 C7 I553 C5 I554 C7 I555 C5 I556 C5 I557 C2 I558 C2 I559 C7 I560 C2 I561 C6 I562 C7 I563 C7 I564 C7 I565 C2

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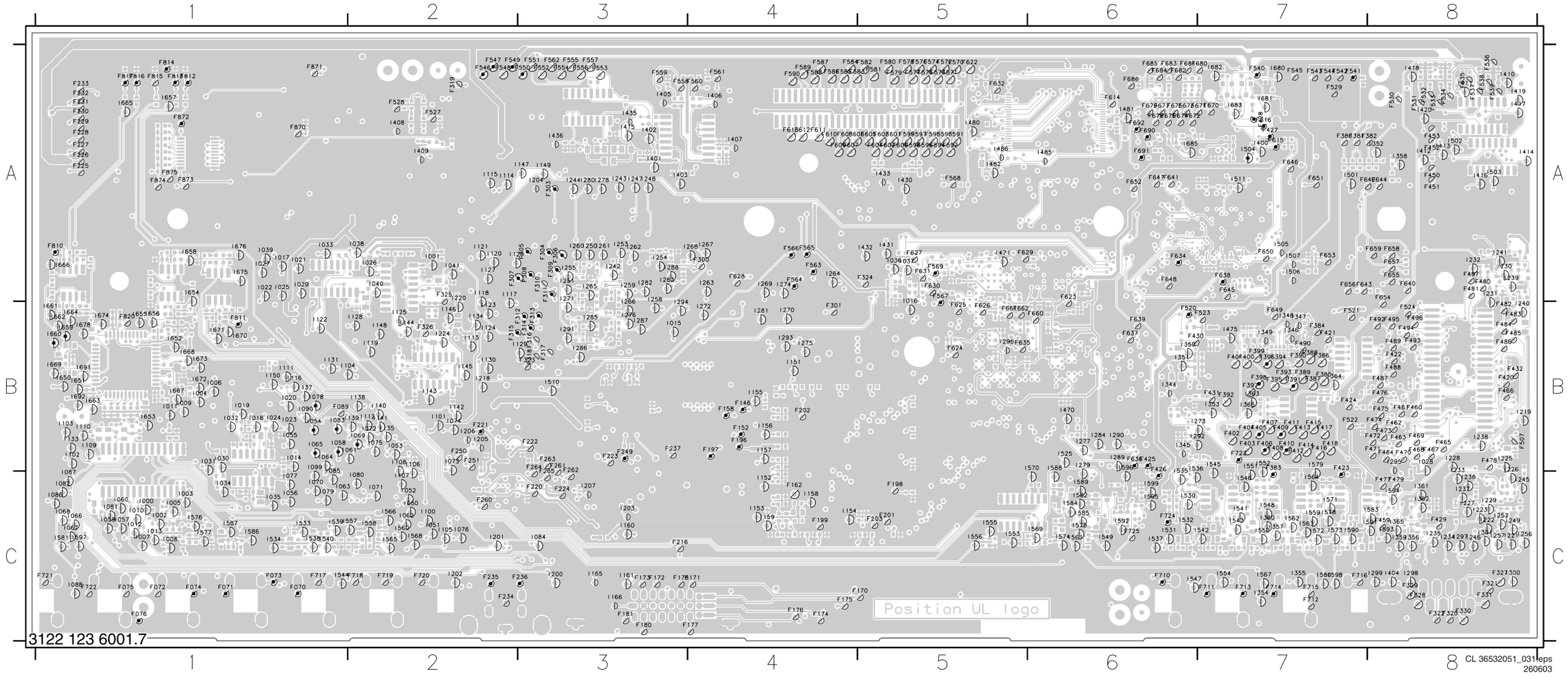


Block Diagram Audio (FM23 AC/FM24 AB/FM33 AA)

AUDIO

SC13 AUDIO SOURCE SELECT

SC14 AUDIO-PROCESSOR

A2 FILTERS

A3 AUDIO AMPL- L-HIGH

A4 AUDIO AMPL- L-LOW

A5 AUDIO AMPL- R-HIGH

A6 AUDIO AMPL- R-LOW

SC15 AUDIO DELAY LINE

AUDIO DELAY PROC.

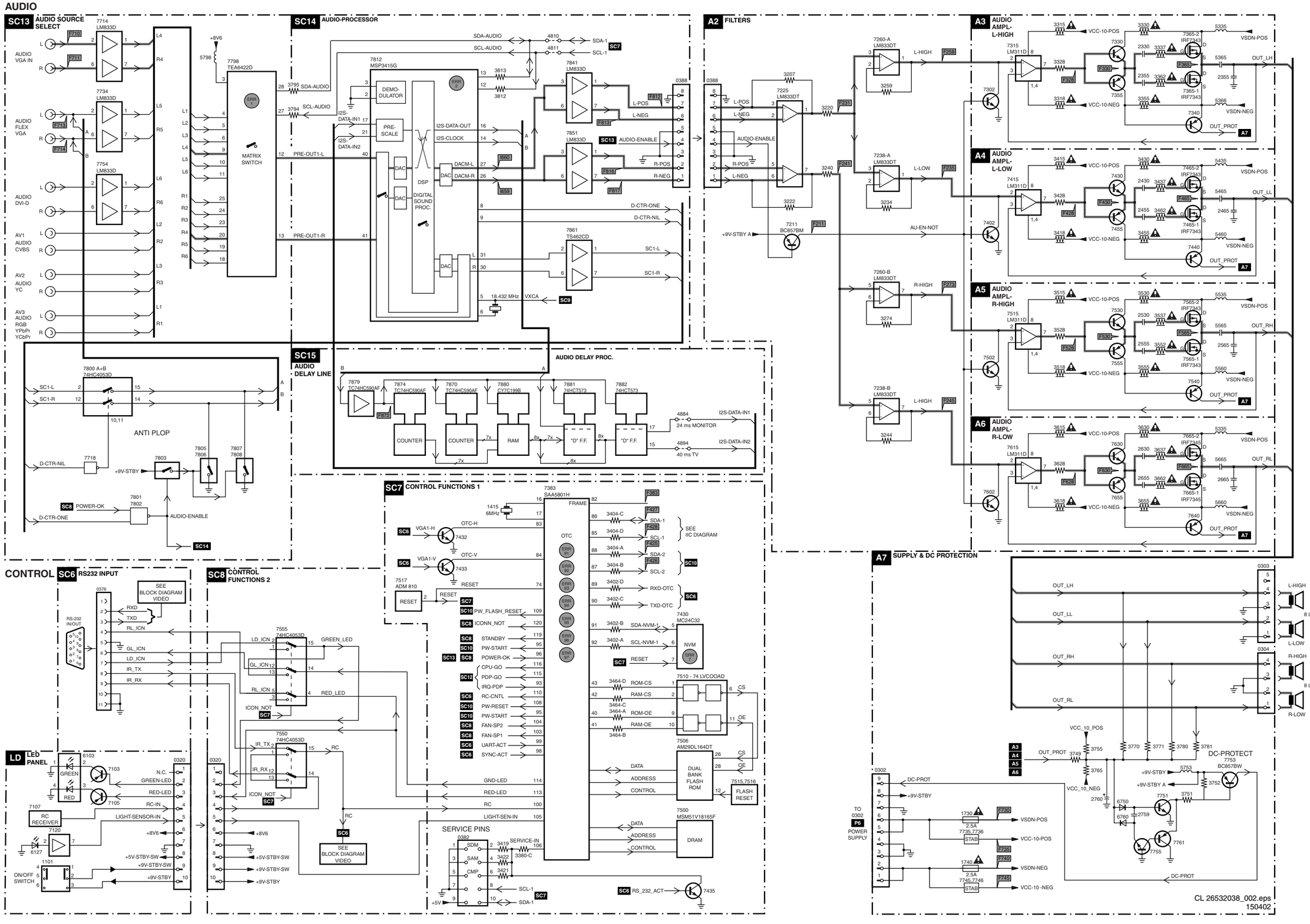
SC7 CONTROL FUNCTIONS 1

CONTROL SC6 RS232 INPUT

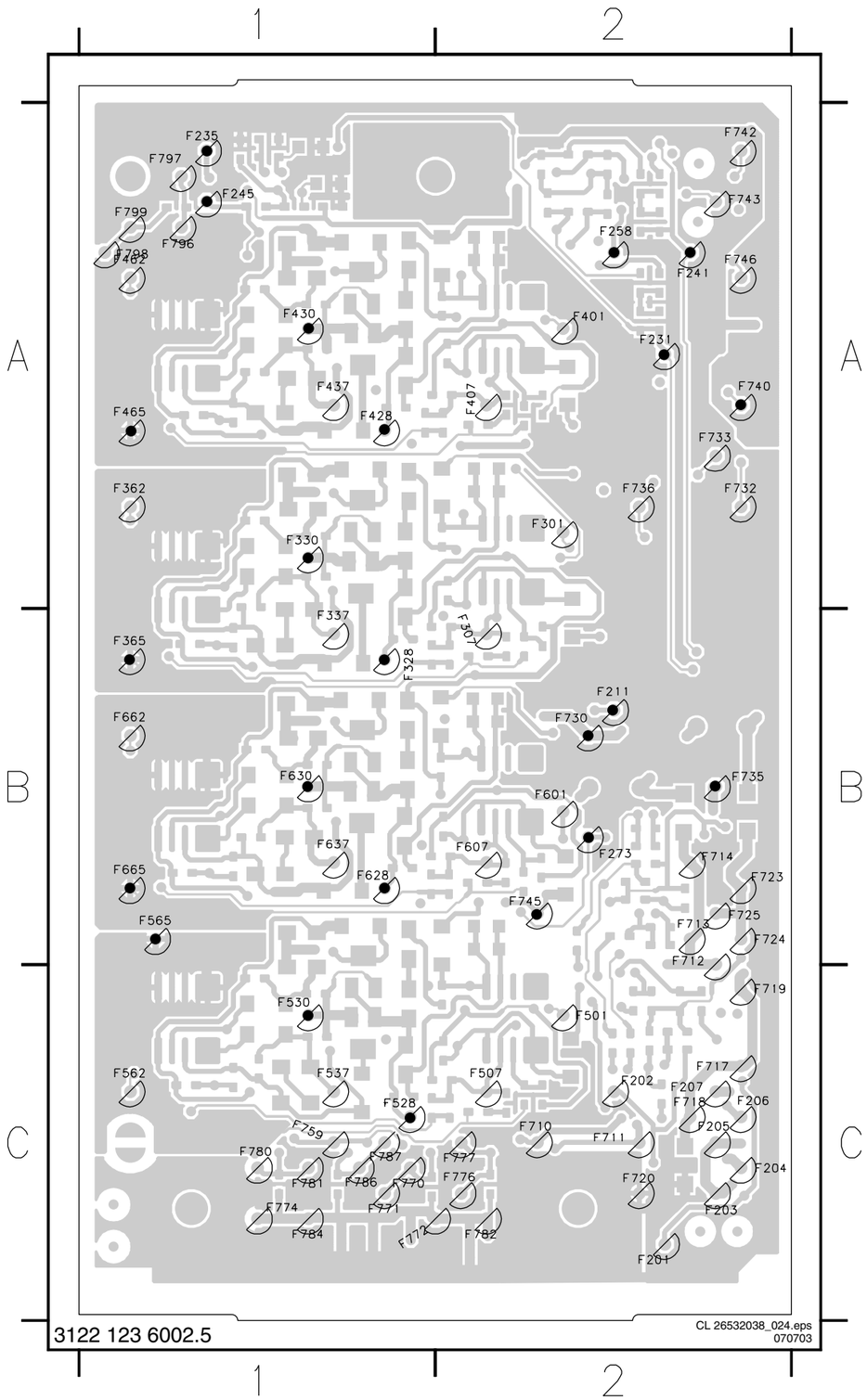
SC8 CONTROL FUNCTIONS 2

LD LED PANEL

A7 SUPPLY & DC PROTECTION



Testpoint Overview: Audio Amplifier Panel



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F202	C2	F719	C2	F407	A2	F774	C1
F202	C2	F719	C2	F407	A2	F774	C1
F203	C2	F720	C2	F428	A1	F776	C2
F203	C2	F720	C2	F428	A1	F776	C2
F204	C2	F723	B2	F430	A1	F777	C2
F204	C2	F723	B2	F430	A1	F777	C2
F205	C2	F724	B2	F465	A1	F780	C1
F205	C2	F724	B2	F465	A1	F780	C1
F206	C2	F725	B2	F501	C2	F781	C1
F206	C2	F725	B2	F501	C2	F781	C1
F207	C2	F730	B2	F507	C2	F782	C2
F207	C2	F730	B2	F507	C2	F782	C2
F211	B2	F732	A2	F528	C1	F784	C1
F211	B2	F732	A2	F528	C1	F784	C1
F231	A2	F733	A2	F530	C1	F786	C1
F231	A2	F733	A2	F530	C1	F786	C1
F235	A1	F735	B2	F565	B1	F787	C1
F235	A1	F735	B2	F565	B1	F787	C1
F241	A2	F736	A2	F601	B2	F796	A1
F241	A2	F736	A2	F601	B2	F796	A1
F245	A1	F740	A2	F607	B2	F797	A1
F245	A1	F740	A2	F607	B2	F797	A1
F258	A2	F742	A2	F628	B1	F798	A1
F258	A2	F742	A2	F628	B1	F798	A1
F273	B2	F743	A2	F630	B1	F799	A1
F273	B2	F743	A2	F630	B1	F799	A1
F301	A2	F745	B2	F665	B1		
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F307	B2	F746	A2	F710	C2		
F307	B2	F746	A2	F710	C2		
F328	B1	F759	C1	F711	C2		
F328	B1	F759	C1	F711	C2		
F330	A1	F770	C1	F712	B2		
F330	A1	F770	C1	F712	B2		
F365	B1	F771	C1	F713	B2		
F365	B1	F771	C1	F713	B2		
F401	A2	F772	C1	F714	B2		
F401	A2	F772	C1	F714	B2		
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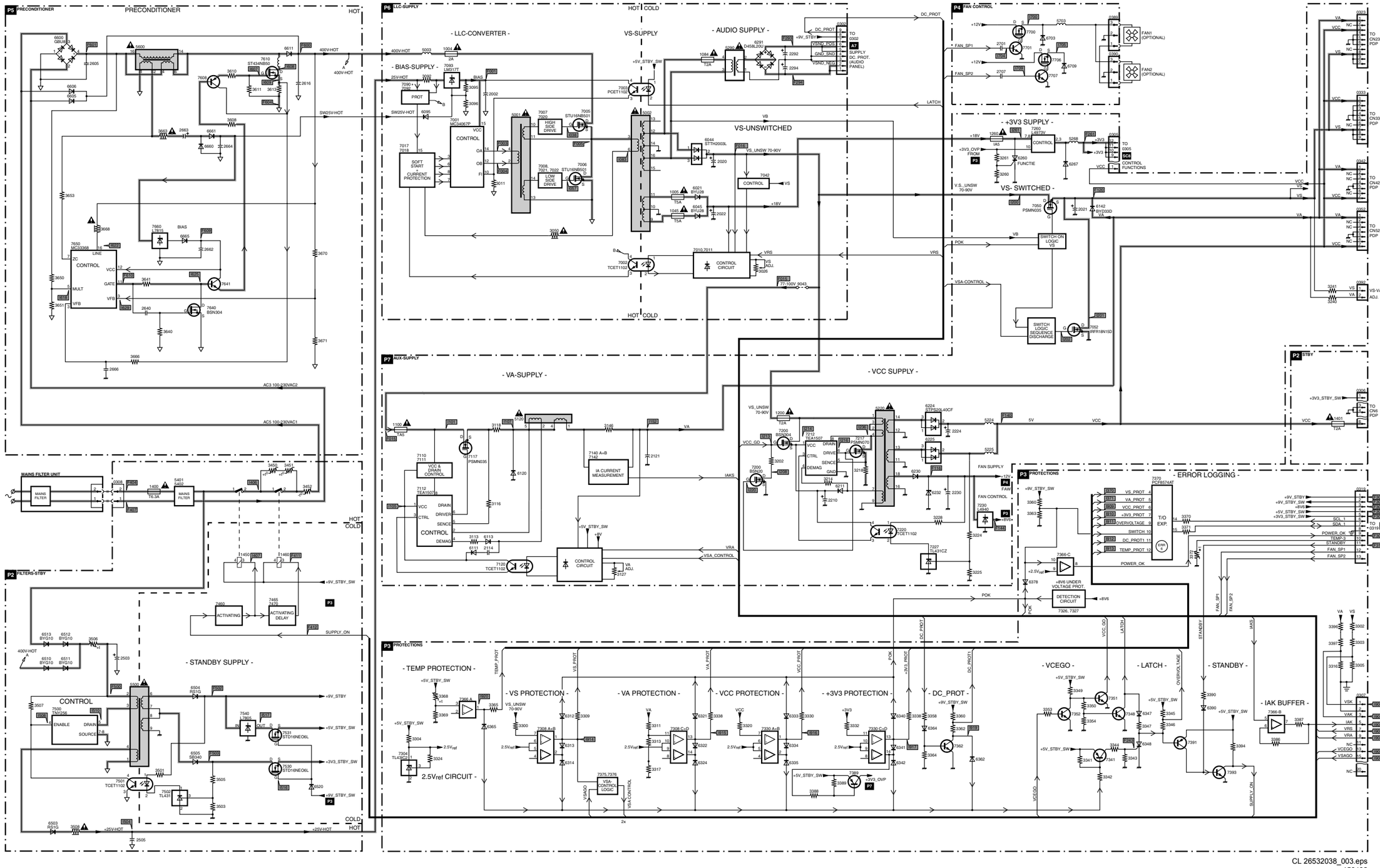
Personal Notes:

Block Diagram Power Supply (FM23 AC)



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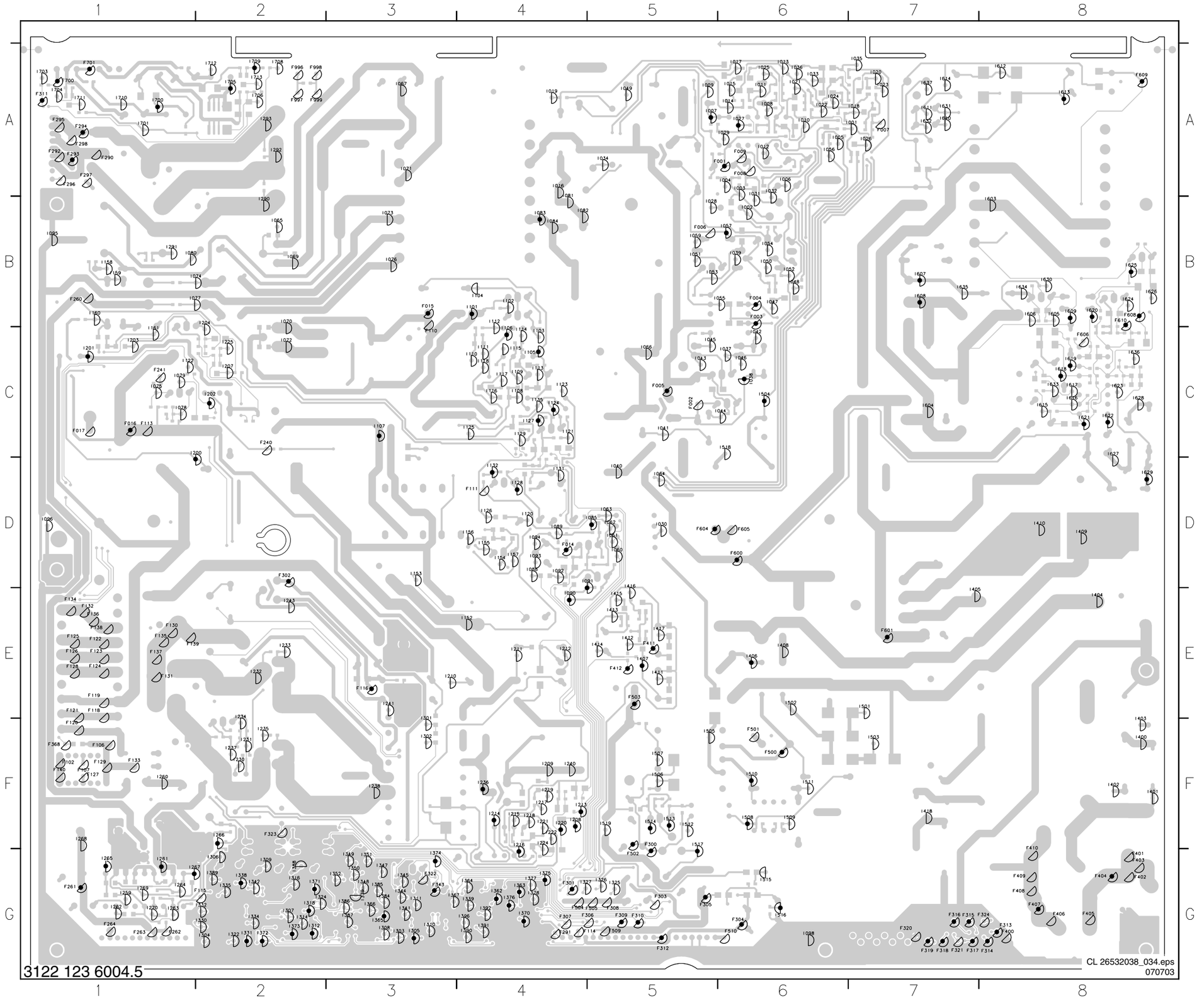
Testpoint Overview Power Supply (FM23AC)



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F003	B6	I008	A6	I076	B4	I207	C2	I326	G5	I502	E7	I906	G8
F004	B6	I008	A6	I076	B4	I207	C2	I326	G5	I502	E7		
F005	C6	I009	A6	I077	B2	I208	F5	I327	G5	I503	F7		
F006	B6	I009	A6	I077	B2	I208	F5	I327	G5	I503	F7		
F007	A7	I010	A7	I078	C2	I209	F5	I330	G2	I504	C6		
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F009	A6	I011	A6	I079	C2	I210	E4	I331	G2	I505	F6		
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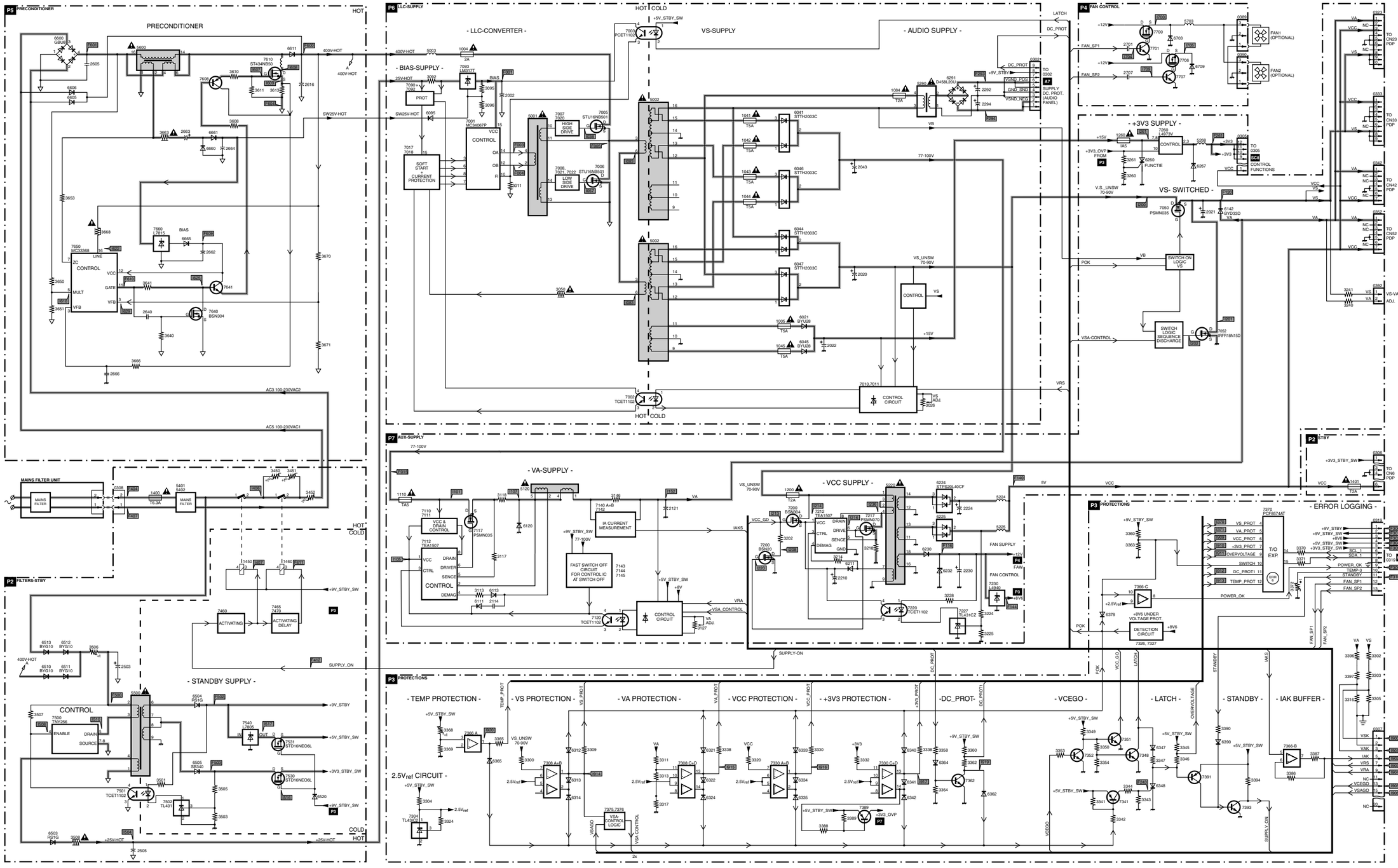
I005	A7	I073	B4	I202	C2	I322	G2	I417	E6	I900	G7		
I005	A7	I073	B4	I202	C2	I322	G2	I417	E6	I901	G7		
I006	A7	I074	B2	I203	C2	I324	G3	I418	F8	I902	G7		
I006	A7	I074	B2	I203	C2	I324	G3	I418	F8	I903	G7		

Block Diagram Power Supply (FM24 AB/FM33 AA)



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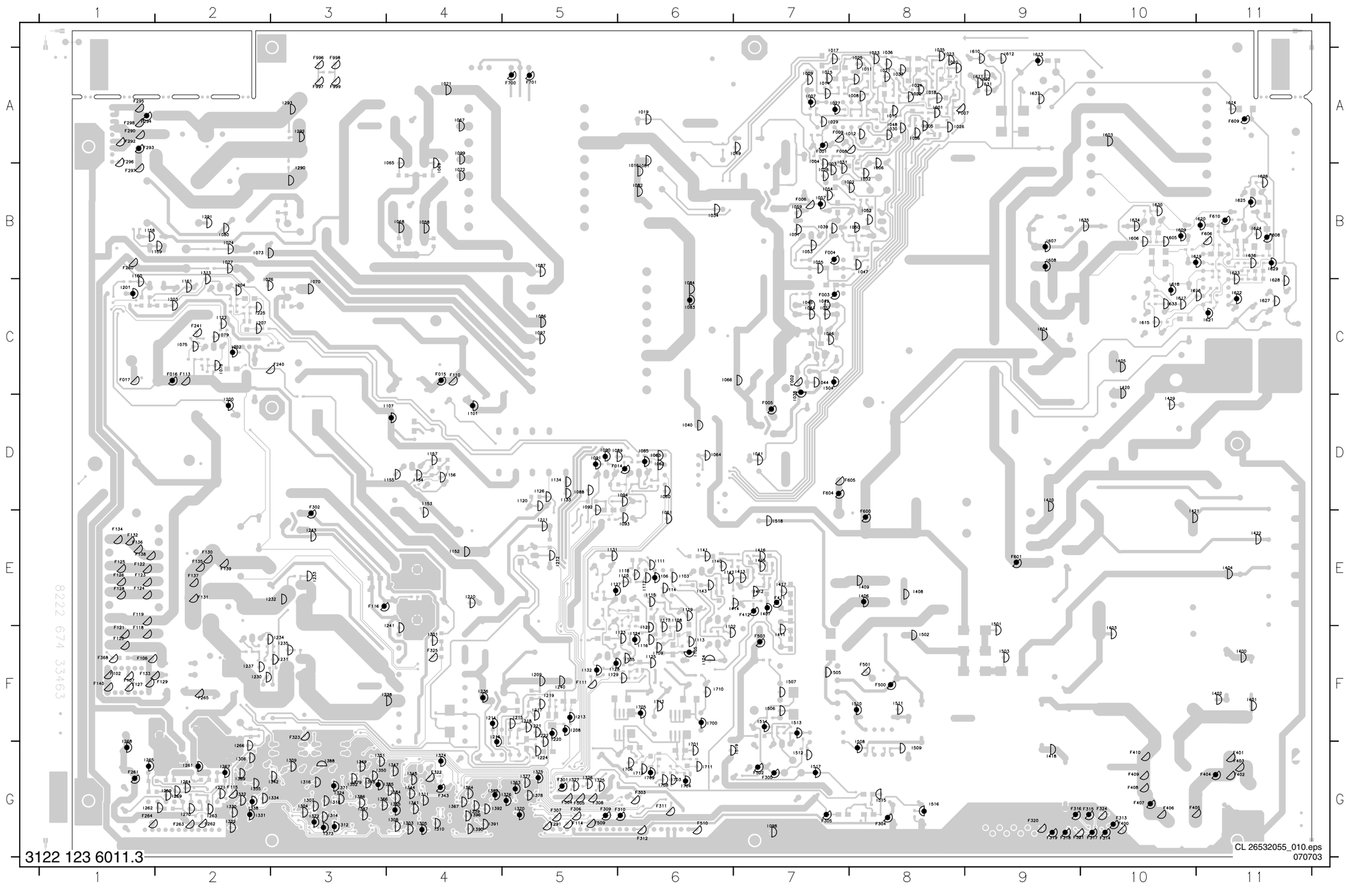
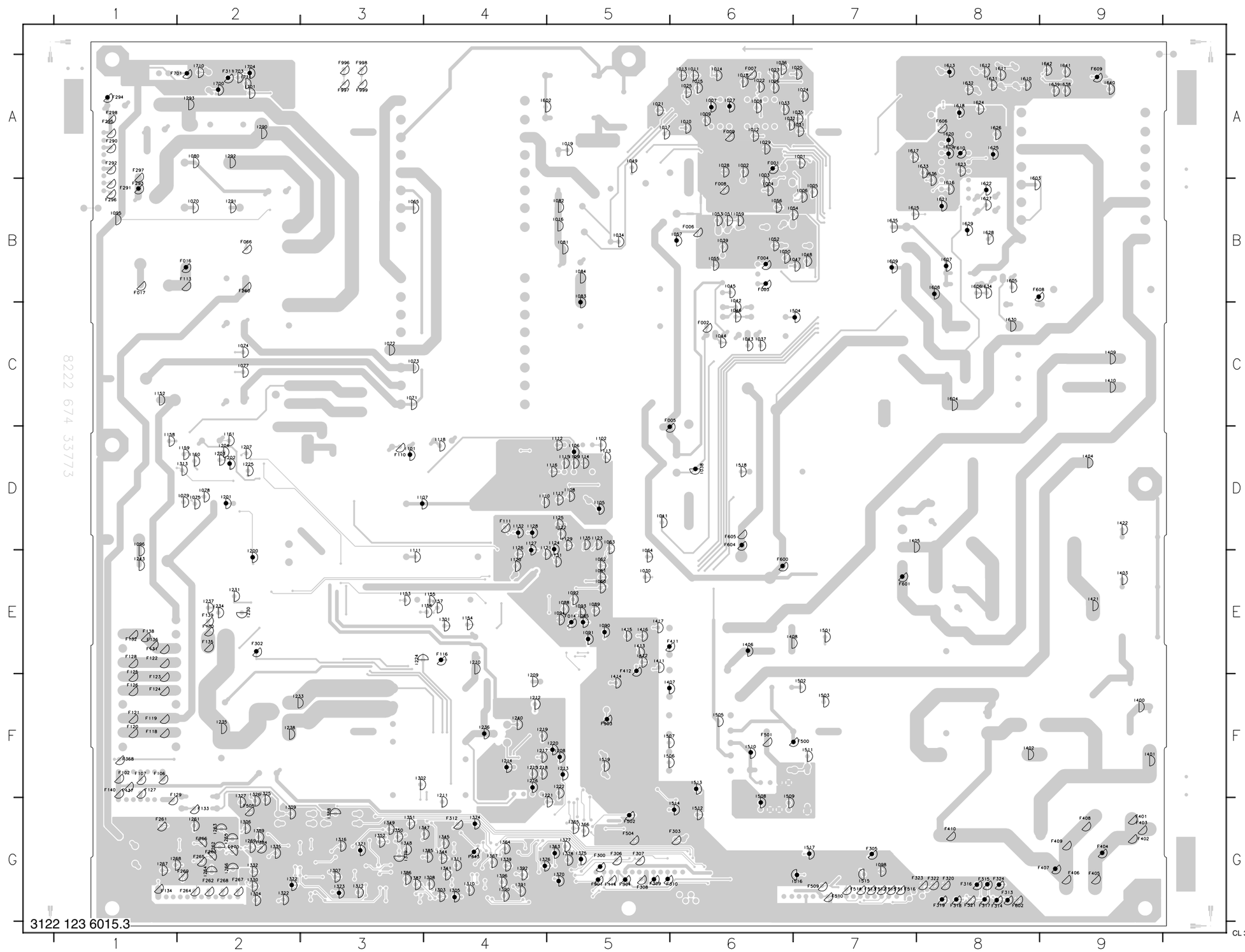
Testpoint Overview: Power Supply (FM24 AB)

F001 A7 F002 C7 F003 C7 F004 B7 F005 B7 F006 B7 F007 A8 F008 A8 F009 A7 F014 D6 F015 C1 F016 C2 F017 C1 F102 F1 F106 F1 F107 F1 F110 C4 F111 C5 F113 C2 F114 G5 F115 F2 F116 F3 F117 F1 F118 F1 F120 F1 F121 F1 F123 F1 F124 F1 F125 F1 F126 F1 F127 F1 F128 F1 F129 F1 F130 E2 F131 F2 F132 F1 F133 F1 F134 E1 F135 E2 F136 E1 F137 E2 F138 E2 F139 E2 F140 F1 F241 C2 F241 C2 F260 B1 F261 F2 F262 G2 F263 G2 F264 G2 F265 F2 F290 A1 F291 C6 F292 A1 F293 A1 F294 A1 F295 A1 F296 A1 F297 B1 F298 A1 F299 A1 F300 C7 F301 G5 F302 G5 F303 G5 F304 G6 F305 G5 F306 G5 F307 G5 F308 A1 F309 G5 F310 G6 F311 C6 F312 C6 F313 G10 F314 G10 F315 G10 F316 G9 F317 G10 F318 G9 F319 G9 F320 G9 F321 G9 F322 G4 F323 F3 F324 F10 F325 F4 F343 G4 F368 F1 F400 G10 F401 G11 F402 G11 F403 G11 F404 G11 F405 G10 F406 G10 F407 G10 F408 G10 F409 G10 F410 G10 F411 E7 F412 E7 F500 F8 F501 F8 F502 F8 F503 F7 F504 G5 F505 G7 F509 G5 F510 G6 F511 G6 F600 E9 F601 E9 F604 D7 F605 D7 F606 B11 F608 B11 F609 A11 F610 B11 F700 A5 F701 A5 F996 A3 F997 A3 F998 A3 F999 A3 I001 A8 I002 B6 I003 A8 I004 B7 I005 A8 I006 A8 I007 A8 I008 A8 I009 A7 I010 A8 I011 A8 I012 A8 I013 A8 I014 A7 I015 A7 I016 B6 I017 B6 I018 A8 I019 A8 I020 A8 I021 A8 I022 A8 I023 A8 I024 A8 I025 A8 I026 A8 I027 A7 I028 B7 I029 A7 I030 A7 I031 B7 I032 B6 I033 B8 I034 B6 I035 A8 I036 A8 I037 C7 I038 A8 I039 B7 I040 D6 I041 B7 I042 C7 I043 C7 I044 C7 I045 C7 I046 C7 I047 B8 I048 A7 I049 A7 I050 B6 I051 B7 I052 B6 I053 B7 I054 B7 I055 B7 I056 A6 I057 C7 I058 B4 I059 B7 I060 D6 I061 D6 I062 D6 I063 D6 I064 D6 I065 A4 I066 C7 I067 A4 I068 B4 I069 A4 I070 C3 I071 A4 I072 B4 I073 B2 I074 B2 I075 C2 I076 C2 I077 B2 I078 C2 I079 C3 I080 B2 I081 A6 I082 D6 I083 D6 I084 C6 I085 D6 I086 C5 I087 C5 I088 D5 I089 D5 I090 D5 I091 D5 I092 D5 I093 F6 I094 D6 I095 C5 I096 F6 I097 C5 I098 C7 I099 A4 I100 D4 I101 F6 I102 F6 I103 F6 I104 F6 I105 F6 I106 E6 I107 D4 I108 F6 I109 F6 I110 E6 I111 E6 I112 E6 I113 F6 I114 E6 I115 E6 I116 E6 I117 E6 I118 E6 I119 E6 I120 E6 I121 E6 I122 C2 I123 F6 I124 F6 I125 F6 I126 D5 I127 F5 I128 F5 I129 F6 I130 F5 I131 F5 I132 F5 I133 F5 I134 F5 I135 F5 I136 F5 I137 F5 I138 F5 I139 F5 I140 F6 I141 F5 I142 F6 I143 F6 I144 F6 I145 F4 I146 D4 I147 D4 I148 D4 I149 D4 I150 D4 I151 D4 I152 D4 I153 D4 I154 D4 I155 D4 I156 D4 I157 D4 I158 B1 I159 B5 I160 B5 I161 C2 I162 B5 I163 B5 I164 B5 I165 B5 I166 B5 I167 B5 I168 B5 I169 B5 I170 B5 I171 B5 I172 B5 I173 B5 I174 B5 I175 B5 I176 B5 I177 B5 I178 B5 I179 B5 I180 B5 I181 B5 I182 B5 I183 B5 I184 B5 I185 B5 I186 B5 I187 B5 I188 B5 I189 B5 I190 B5 I191 B5 I192 B5 I193 B5 I194 B5 I195 B5 I196 B5 I197 B5 I198 B5 I199 B5 I200 B5 I201 C1 I202 C2 I203 C2 I204 C2 I205 C2 I206 C2 I207 C2 I208 C2 I209 F5 I210 E4 I211 F5 I212 F5 I213 F5 I214 F4 I215 F5 I216 G4 I217 F5 I218 F5 I219 F5 I220 F5 I221 F5 I222 G5 I223 G5 I224 G5 I225 F5 I226 F5 I227 F5 I228 F5 I229 F5 I230 F5 I231 F5 I232 F5 I233 F3 I234 F2 I235 F2 I236 F4 I237 F2 I238 F2 I239 F2 I240 F5 I241 F4 I243 F3 I259 G2 I260 G2 I261 G2 I262 G2 I263 G2 I264 G2 I265 G2 I266 G2 I267 G2 I268 G1 I269 G2 I270 G2 I271 G2 I290 A3 I291 B2 I292 A3 I293 A3 I294 A3 I295 A3 I296 A3 I297 F4 I303 G4 I304 G3 I305 G4 I306 G2 I307 G3 I308 G3 I309 G3 I310 G4 I311 G3 I312 G3 I313 G2 I314 G4 I315 G3 I316 G3 I317 G3 I318 G3 I319 G3 I320 G3 I321 G3 I322 G3 I323 G3 I324 G3 I325 G5 I326 G3 I327 G3 I329 G5 I330 G2 I331 G2 I332 G2 I333 G2 I334 G2 I335 G2 I336 G2 I337 G3 I338 G4 I339 G4 I340 G4 I341 G4 I342 G3 I344 G4 I345 G4 I346 G4 I347 G4 I348 G3 I349 G3 I350 G3 I351 G3 I352 G3 I362 G4 I363 G5 I364 G4 I365 G4 I366 G3 I367 G4 I370 G5 I371 G3 I372 G3 I373 G3 I374 G3 I375 G5 I376 G5 I377 G5 I378 G5 I379 G3 I384 G4 I385 G4 I386 G3 I387 G3 I388 G3 I389 G2 I390 G4 I391 G4 I392 G4 I396 G4 I400 F11 I401 F11 I402 F11 I403 F10 I404 F10 I405 C10 I406 F9 I407 F8 I408 F8 I409 F8 I410 D9 I411 F7 I412 F7 I413 F7 I414 E6 I415 F7 I416 F7 I417 F7 I418 G9 I419 F7 I420 C10 I421 F10 I422 F11 I501 F9 I502 F8 I503 F9 I504 C7 I505 F7 I506 F7 I507 F7 I508 G8 I509 F8 I510 F8 I511 F8 I512 G7 I513 F7 I514 F7 I515 G8 I516 G7 I517 G7 I518 E7 I519 G6 I601 C11 I602 C11 I603 A10 I604 C9 I605 B10 I606 B10 I607 B9 I608 B9 I609 B10 I610 A9 I611 A9 I612 A9 I613 A9 I614 A11 I615 C10 I616 B10 I617 C10 I618 B10 I619 B10 I620 B11 I621 C11 I622 C11 I623 C11 I624 C11 I625 B11 I626 B11 I627 C11 I628 C11 I629 B11 I630 D10 I631 A9 I632 A9 I633 C10 I634 B10 I635 B10 I636 B11 I637 A9 I700 F6 I701 G6 I703 G6 I704 G6 I705 F6 I706 G6 I708 G6 I709 G6 I710 F6 I711 G6 I712 F6 I713 G6

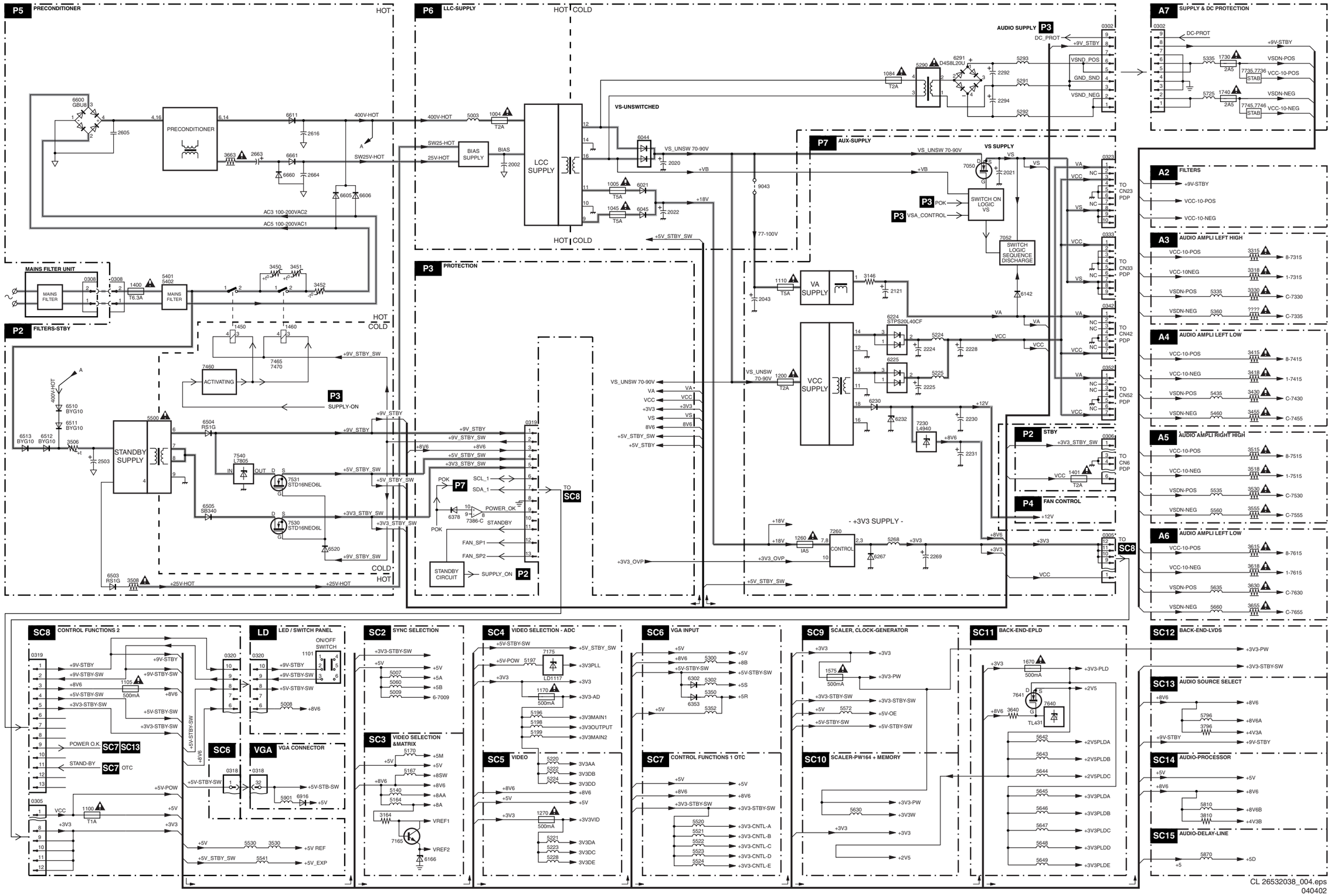


Testpoint Overview: Power Supply (FM33 AA)

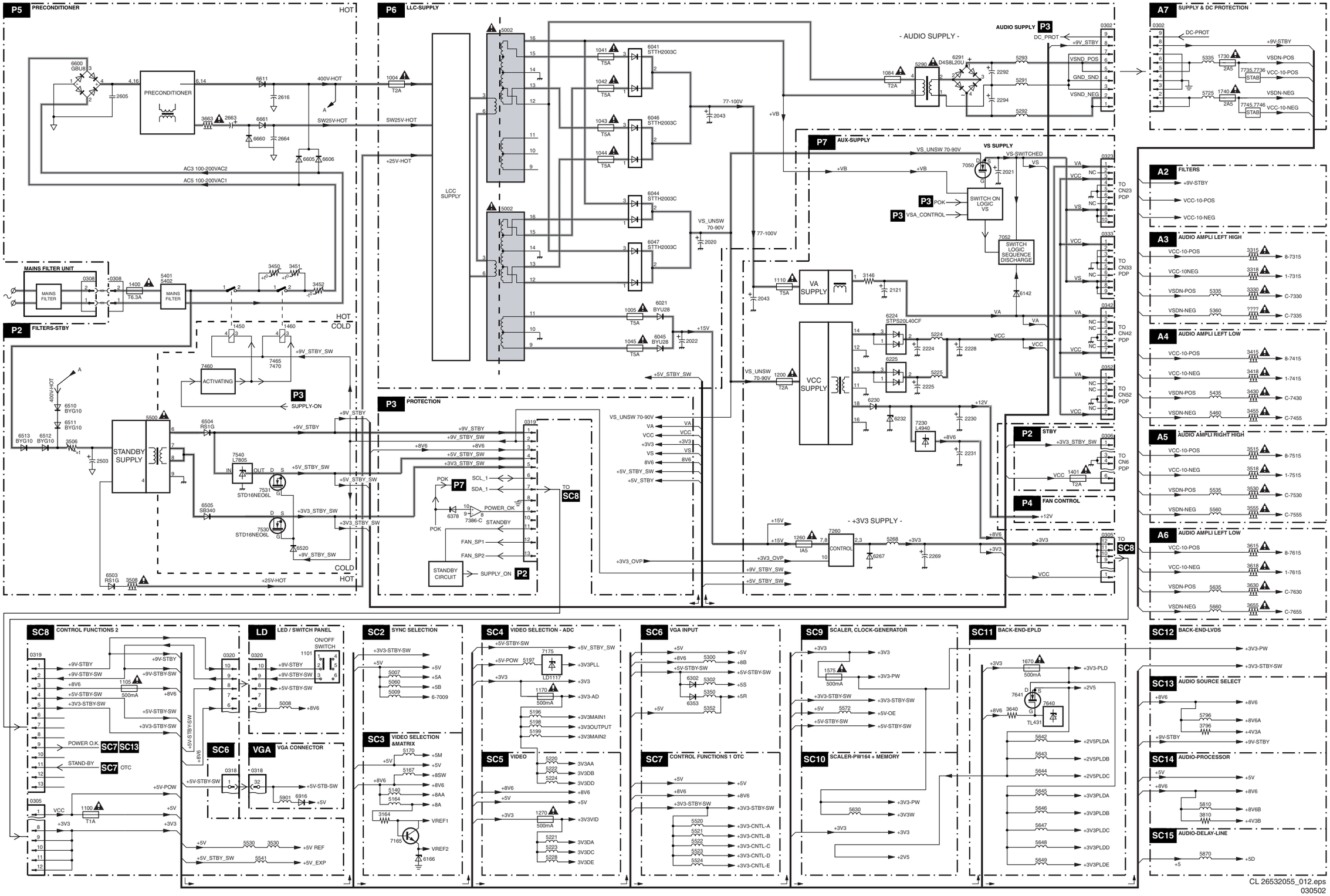
F001 A6 F002 C6 F003 B6 F004 B6 F005 C5 F006 B6 F007 A6 F008 B6 F009 A6 F014 E5 F016 B2 F017 B1 F066 B2 F102 F1 F106 F1 F107 F1 F110 D3 F111 D4 F113 B2 F114 G5 F116 E4 F118 F1 F119 F1 F120 F1 F121 F1 F122 E1 F123 E1 F124 F1 F125 E1 F126 F1 F127 F1 F128 E1 F129 F1 F130 E2 F131 E1 F132 E1 F133 G2 F134 G1 F135 E1 F136 E1 F137 F1 F138 E1 F139 E2 F140 F1 F261 G1 F262 G2 F263 G2 F264 G2 F265 G2 F266 G2 F267 G2 F268 G2 F269 G2 F270 G2 F290 A1 F291 B1 F292 A1 F293 A1 F294 A1 F295 A1 F296 B1 F297 A1 F298 A1 F300 G5 F301 G5 F302 E2 F303 G6 F304 G5 F305 G7 F306 G5 F307 G5 F308 G5 F309 G5 F310 G6 F311 A2 F312 G4 F313 G8 F314 G8 F315 G8 F316 G8 F317 G8 F318 G8 F319 G8 F320 G8 F321 G8 F322 G8 F323 G7 F324 G8 F343 G4 F345 G4 F348 G4 F349 G4 F350 G4 F351 G4 F352 G4 F353 G4 F354 G4 F355 G4 F356 G4 F357 G4 F358 G4 F359 G4 F360 G4 F361 G4 F362 G4 F363 G4 F364 G4 F365 G4 F366 G4 F367 G4 F368 F1 F384 G2 F400 G9 F401 G9 F402 G9 F403 G9 F404 G9 F405 G9 F406 G9 F407 G9 F408 G9 F409 G9 F410 G8 F411 E6 F412 E5 F414 G5 F415 G5 F416 G5 F500 F6 F501 G7 F502 G5 F503 G5 F504 G5 F505 G2 F506 G7 F507 G7 F508 G7 F509 G7 F510 G7 F511 G7 F512 G7 F513 G7 F514 G7 F515 G7 F516 G7 F517 G7 F518 G7 F519 G7 F520 G7 F521 G7 F600 E6 F601 E7 F602 G8 F604 D6 F605 D6 F606 A8 F608 B8 F609 A9 F610 A8 F701 A2 F996 A3 F997 A3 F998 A3 F999 A3 I001 A7 I002 A6 I003 A6 I004 B6 I005 B7 I006 B7 I007 A6 I008 A6 I009 A6 I010 A6 I011 A6 I012 A6 I013 A6 I014 A6 I015 A6 I016 B5 I017 A5 I018 A6 I019 A5 I020 A7 I021 A5 I022 A6 I023 A6 I024 A7 I025 A6 I026 A6 I027 A6 I028 A6 I029 A6 I030 E5 I031 A7 I032 A6 I033 A6 I034 B5 I035 A7 I036 A6 I037 C6 I038 D6 I039 B6 I041 D5 I042 B6 I043 C6 I044 C6 I045 B6 I046 C6 I047 B6 I048 B7 I049 A5 I050 B6 I051 B6 I052 B6 I053 B6 I054 B6 I055 B6 I056 B6 I057 B6 I059 B6 I060 E5 I061 E5 I062 E5 I063 D5 I064 D5 I065 B3 I070 B2 I071 C3 I072 C3 I073 C3 I074 C2 I075 D2 I077 C2 I078 D2 I079 D2 I080 A2 I081 B5 I082 B5 I083 B5 I084 B5 I085 E5 I088 E5 I089 E5 I090 E5 I091 E5 I092 E5 I093 E5 I094 E5 I095 B1 I096 D1 I098 G7 I101 D3 I102 D5 I105 D5 I106 D5 I107 D3 I108 D5 I109 D5 I110 D4 I111 D3 I112 D5 I113 D5 I114 D5 I115 D5 I116 D5 I117 D5 I118 D4 I120 E4 I121 D4 I122 D5 I123 D5 I124 D5 I125 D5 I126 D4 I127 D4 I128 D4 I129 D5 I131 E5 I132 D4 I135 D5 I152 C1 I153 E3 I154 E4 I155 E4 I156 E4 I157 E4 I158 D1 I159 D2 I160 D2 I161 D2 I200 D2 I201 D2 I202 D2 I203 D2 I204 D2 I207 D2 I208 F5 I209 E4 I210 E4 I211 F4 I212 F4 I213 F5 I214 F4 I215 F4 I216 F4 I217 F4 I218 F4 I219 F4 I220 F5 I221 F4 I222 F5 I224 E3 I225 D2 I230 E2 I231 E2 I233 F2 I234 E2 I235 F2 I236 F4 I237 E2 I238 F2 I240 F4 I243 E1 I261 G2 I262 G2 I263 G2 I264 G2 I265 G2 I266 G2 I267 G1 I268 G1 I269 G2 I290 A2 I291 B2 I292 A2 I293 A2 I296 A2 I297 A2 I298 A2 I300 A2 I301 E4 I302 F3 I303 G4 I304 G2 I305 G4 I306 G2 I307 G3 I308 G4 I309 G2 I310 G4 I311 G4 I312 G3 I313 D2 I316 G3 I322 G2 I325 F2 I326 F2 I327 F2 I330 G2 I332 G2 I335 G2 I339 G4 I341 G4 I344 G4 I345 G4 I347 G4 I348 G3 I349 G3 I350 G3 I351 G3 I352 G3 I363 G5 I364 G4 I365 G5 I366 G5 I367 G4 I370 G5 I371 G3 I372 G2 I373 G3 I374 G4 I375 G5 I376 G4 I377 G5 I378 G5 I379 G3 I385 G4 I386 G3 I387 G3 I388 G3 I389 G2 I390 G4 I391 G4 I392 G4 I396 G4 I400 F9 I401 F9 I402 F8 I403 E9 I404 D9 I405 D7 I406 E6 I407 F5 I408 E6 I409 C9 I410 C9 I411 E5 I412 E5 I413 E5 I414 E5 I415 E5 I416 E5 I417 E5 I421 E9 I422 D9 I501 E7 I502 F7 I503 F7 I504 C6 I505 F6 I506 F5 I507 F5 I508 F6 I509 F6 I510 F6 I511 F7 I512 G6 I513 F6 I514 G6 I515 G7 I516 G7 I517 G7 I518 D6 I519 F5 I602 A4 I603 A8 I604 C8 I605 B8 I606 B8 I607 B8 I608 B8 I609 B7 I610 A8 I611 A8 I612 A8 I613 A8 I615 B7 I616 A8 I617 A8 I618 A8 I619 A8 I620 A8 I621 B8 I622 B8 I623 A8 I624 A8 I625 A8 I626 A8 I627 B8 I628 B8 I630 C8 I631 A8 I632 A8 I633 A8 I634 B8 I635 B7 I636 A8 I638 A9 I639 A9 I640 A9 I641 A9 I642 A9 I700 A2 I701 A2 I703 A2 I704 A2 I710 A2 I711 A2



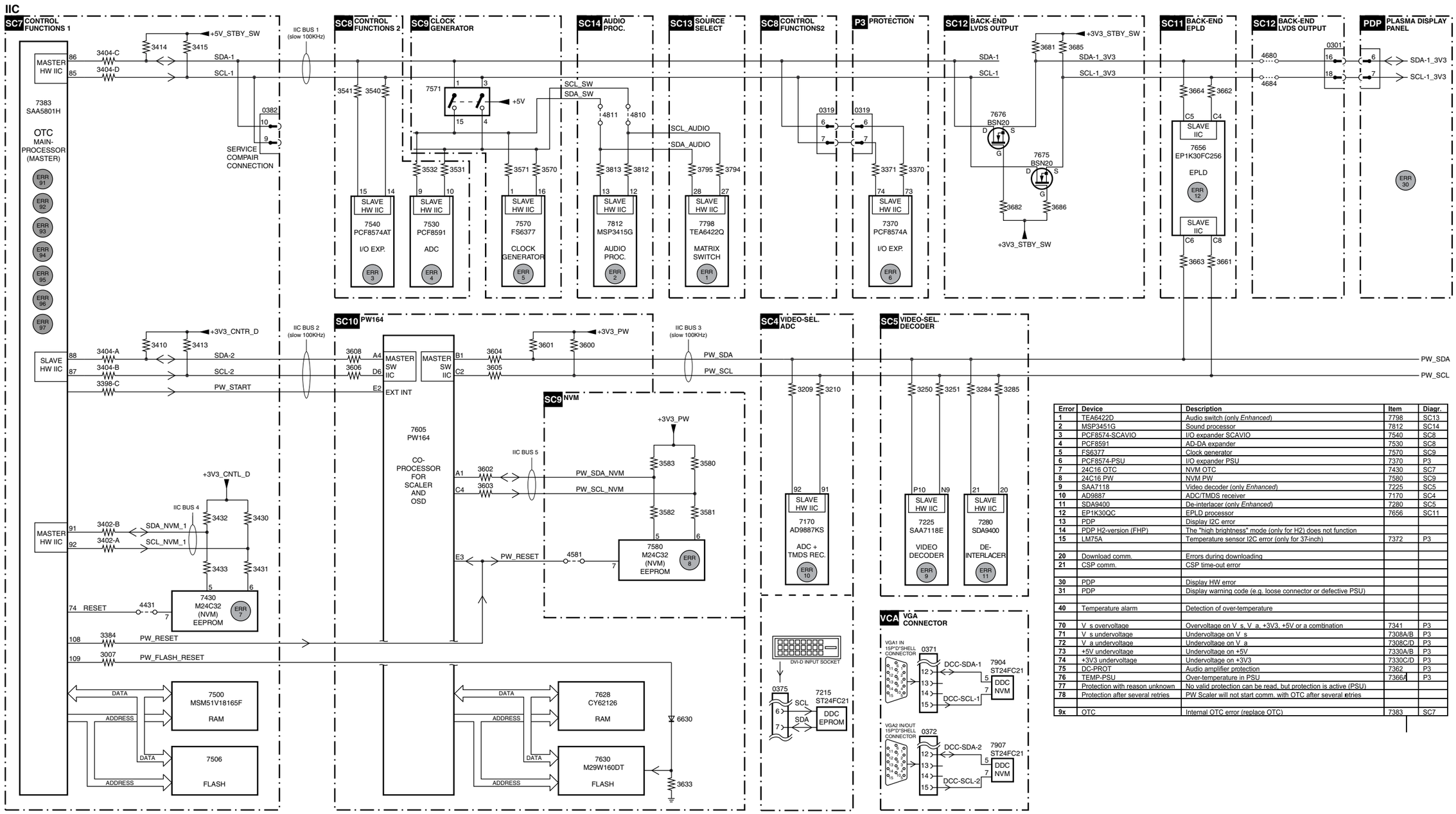
Power Lines Overview (FM23 AC)



Power Lines Overview (FM24 AB/FM33 AA)



I2C-IC Overview (FM23 AC/FM24 AB/FM33 AA)



Error	Device	Description	Item	Diagr.
1	TEA6422D	Audio switch (only *Enhanced*)	7798	SC13
2	MSP3451G	Sound processor	7812	SC14
3	PCF8574-SCAVIO	I/O expander SCAVIO	7540	SC8
4	PCF8591	AD-DA expander	7530	SC8
5	FS6377	Clock generator	7570	SC9
6	PCF8574-PSU	I/O expander PSU	7370	P3
7	24C16 OTC	NVM OTC	7430	SC7
8	24C16 PW	NVM PW	7580	SC9
9	SAA7118	Video decoder (only *Enhanced*)	7225	SC5
10	AD9887	ADC/TMDS receiver	7170	SC4
11	SDA9400	De-interlacer (only *Enhanced*)	7280	SC5
12	EP1K30QC	EPLD processor	7656	SC11
13	PDP	Display I2C error		
14	PDP H2-version (FHP)	The "high brightness" mode (only for H2) does not function		
15	LM75A	Temperature sensor I2C error (only for 37-inch)	7372	P3
20	Download comm.	Errors during downloading		
21	CSP comm.	CSP time-out error		
30	PDP	Display HW error		
31	PDP	Display warning code (e.g. loose connector or defective PSU)		
40	Temperature alarm	Detection of over-temperature		
70	V_s overvoltage	Overvoltage on V_s, V_a, +3V3, +5V or a comtination	7341	P3
71	V_s undervoltage	Undervoltage on V_s	7308A/B	P3
72	V_a undervoltage	Undervoltage on V_a	7308C/D	P3
73	+5V undervoltage	Undervoltage on +5V	7330A/B	P3
74	+3V3 undervoltage	Undervoltage on +3V3	7330C/D	P3
75	DC-PROT	Audio amplifier protection	7362	P3
76	TEMP-PSU	Over-temperature in PSU	7366A	P3
77	Protection with reason unknown	No valid protection can be read, but protection is active (PSU)		
78	Protection after several retries	PW Scaler will not start comm. with OTC after several retries		
9x	OTC	Internal OTC error (replace OTC)	7383	SC7

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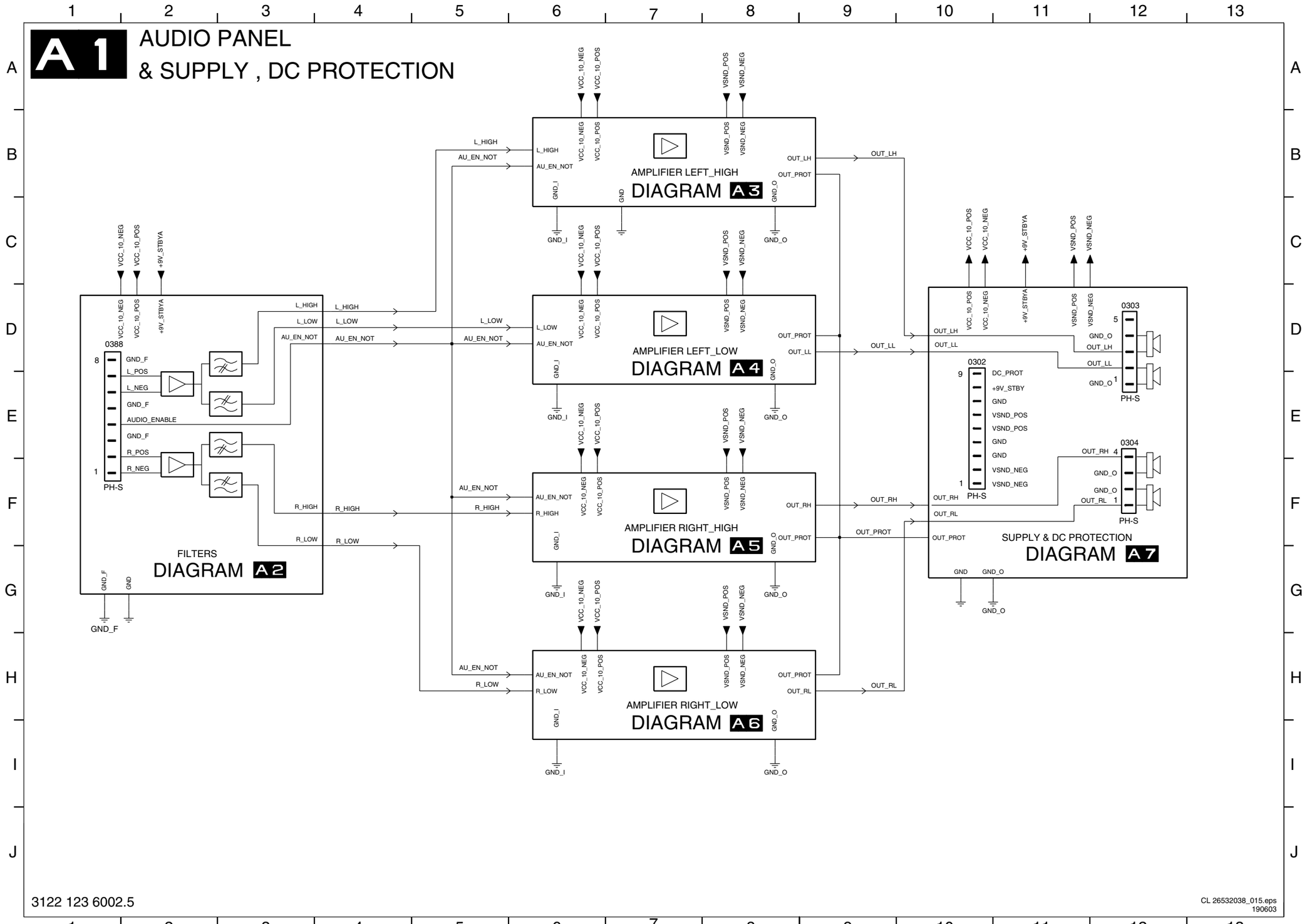
7. Circuit Diagrams and PWB Layouts

Audio Panel & Supply: DC Protection



Audio Panel & Supply: Filters

A2 FILTERS

F211: 1V / div DC, 5ms / div
F241: 50mV / div DC, 200µs / div
F231: 50mV / div DC, 200µs / div
F245: 50mV / div DC, 200µs / div
F235: 50mV / div DC, 200µs / div
F258 = 0V
F278 = 0V

FROM 0388
SC14
SCAVIO PANEL
(AUDIO-PROCESSOR)

0388 PH-S
F201 L_POS
F202 L_NEG
F203 GND_F
F204 AUDIO_ENABLE
F205 GND_F
F206 R_POS
F207 R_NEG

3201 220R, 2202 10u, 2201 4n7, 3202 1K, 2203 RES, 3203 2K7, 2204 82p
3205 220R, 2206 10u, 2205 4n7, 3206 1K, 2207 82p, 3207 2K7
7225-A LM833DT
2225 100n, 2224 100n
3230 100R
+9V_STBYA
7211 BC857BW
3211 100K, 2212 1n, 3210 33K
F211
3215 220R, 2216 10u, 2215 4n7, 3216 1K, 2217 RES, 3217 2K7, 2218 82p
3220 220R, 2221 10u, 2220 4n7, 3221 1K, 2222 82p, 3222 2K7
7225-B LM833DT
3240 100R
C203
C202

F231 → 3231 2K2 → 2234 100n → F235
7238-A LM833DT
3232 1K5, 2238 100n, 2233 68n, 2232 RES, 3233 2K2, 2239 100n, 3234 560R
2254 RES, 2255 22n, 3255 1K2, 3257 470R
F258
7260-A LM833DT
2256 22n, 2260 100n, 2257 RES, 3256 3K3, 3258 RES, 2261 100n, 3259 1R
F241 → 3241 2K2 → 2244 100n → F245
7238-B LM833DT
3242 1K5, 2243 68n, 2242 RES, 3243 2K2, 3244 560R
2269 RES, 2270 22n, 3270 1K2, 3272 470R
F273
7260-B LM833DT
2271 22n, 2272 RES, 3271 3K3, 3273 RES, 3274 1R

VCC_10_POS
VCC_10_NEG
GND_F

L_LOW, AU_EN_NOT → TO DIAGRAM A4 AMPLIFIER LEFT_LOW
L_HIGH, AU_EN_NOT → TO DIAGRAM A3 AMPLIFIER LEFT_HIGH
R_LOW, AU_EN_NOT → TO DIAGRAM A6 AMPLIFIER RIGHT_LOW
R_HIGH, AU_EN_NOT → TO DIAGRAM A5 AMPLIFIER RIGHT_HIGH

3122 123 6002.5
CL 26532038_016.eps 190603

0388 C1
2201 B3
2202 B3
2203 B4
2204 B4
2205 C3
2206 B3
2207 C4
2212 D3
2215 D3
2216 D3
2217 D4
2218 D4
2220 E3
2221 E3
2222 E4
2224 C5
2225 B5
2232 A7
2233 A6
2234 A7
2238 A7
2239 B7
2242 E7
2243 E6
2244 D7
2254 B6
2255 B6
2256 C6
2257 C7
2260 C7
2261 C7
2269 E6
2270 E6
2271 F6
2272 F7
3201 B3
3202 B3
3203 B4
3205 B3
3206 B3
3207 C4
3210 D3
3211 D3
3215 D3
3216 D3
3217 D4
3220 E3
3221 E3
3222 E4
3230 B6
3231 A6
3232 A7
3233 B6
3234 B7
3240 E6
3241 D6
3242 D7
3243 E6
3244 E7
3255 B6
3256 C6
3257 B7
3258 C6
3259 D7
3270 E6
3271 F6
3272 E7
3273 F6
3274 F7
7211 C4
7225-A B5
7225-B D5
7238-A A7
7238-B D7
7260-A C7
7260-B F7

C202 F2
C203 F2
F201 C2
F202 C2
F203 D2
F204 D2
F205 D2
F206 D2
F207 D2
F211 C4
F231 A6
F235 A8
F241 D6
F245 D8
F258 B8
F273 E8

Audio Panel & Supply: Left High

2309 D4	2316 C5	2330 C7	2340 E7	2360 E8	3301 C3	3304 D2	3308 C4	3311 C4	3325 B5	3330 B6	3340 D6	3362 D8	5365 C9	6335 C7	6359 E7	7303 C3	7340 D7	7365-2 C8	F301 C3	F330 C7	F365 C8
2310 B3	2318 D5	2334 B8	2355 D7	2365 C9	3302 D3	3306 C3	3309 D4	3315 B5	3327 C5	3336 B8	3355 E6	5335 B8	6328 C6	6355 D6	6360 D7	7315 C4	7355 D6	C301 E3	F307 C4	F337 C8	
2315 C4	2319 D5	2335 B8	2359 E8	2366 C9	3303 C2	3307 C4	3310 B3	3318 D5	3328 B6	3337 C8	3361 E8	5360 E8	6334 B7	6356 E6	7302 D3	7330 C6	7365-1 D8	C302 E3	F328 B6	F362 D8	

A3 AUDIO AMPLIFIER LEFT HIGH

F328
2V / div DC
1µs / div

F330
2V / div DC
1µs / div

F365
5V / div DC
1µs / div

FROM DIAGRAM A2
FILTERS

TO DIAGRAM A7
SUPPLY & DC PROTECTION

VSND_POS
5335 100MHZ
VCC_10_POS
2310 82p
3310 82K
3315 10R
3330 10R
3307 100K
3308 100K
2315 1u
2316 100n
3325 2K2
3328 1K
F328
3327 2K2
6328 BAS316
14V2
7330 BC817-25
-0V04
F330
-0V04
7355 BC807-25
-14V2
6334 BZX384-C4V7
6335 BZX384-C4V7
3336 4M7
2334 220u
2335 100n
GND_O
F337
7365-2 IRF7343
14V3
3337 10R
2330 100n
2355 100n
F365
0V
5365 33u
OUT_LH
OUT_PROT
2365 220n
2366 220n
7365-1 IRF7343
3362 10R
-14V4
F362
7340 BC847BW
0V
3340 10K
-14V2
6355 BZX384-C4V7
6356 BZX384-C4V7
6360 BZX384-C4V7
6359 BZX384-C4V7
3355 10R
2340 10n
3361 4M7
2360 220u
2359 100n
5360 100MHZ
VSND_NEG
L_HIGH
3303 1K
3301 1K
F301
7303 BC847BW
3304 4K7
3306 8K2
AU_EN_NOT
3302 4K7
7302 BC847BW
3311 1R
F307
7315 LM311D
BAL
STR|BAL
V+
V-
9V7
-9V8
0V
-2V
2309 1n5
3309 180R
3318 10R
2318 100n
2319 1u
VCC_10_NEG
C302
C301
GND_I

CL 26532038_017.eps
190603

3122 123 6002.5

Audio Panel & Supply: Left Low

2409 D3	2416 C4	2430 C7	2440 E6	2460 E8	3401 C3	3404 D2	3408 C4	3411 C3	3425 B5	3430 B6	3440 D6	3462 D8	5465 C9	6435 C7	6459 E7	7403 C2	7440 D7	7465-2 C8	F428 B6	F462 D8
2410 B3	2418 D5	2434 B8	2455 D7	2465 D9	3402 D2	3406 C3	3409 D4	3415 B4	3427 C5	3436 B7	3455 E6	5435 B8	6428 C5	6455 D6	6460 D7	7415 C4	7455 D6	7465-1 D8	F430 C6	F465 C8
2415 C4	2419 D5	2435 B8	2459 E8	2466 D9	3403 C2	3407 C3	3410 B3	3418 D4	3428 B5	3437 C8	3461 E7	5460 E8	6434 B7	6456 E6	7402 D3	7430 C6	7465-1 D8	F401 C3	F437 C8	

A4 AUDIO AMPLIFIER LEFT LOW

F428
2V / div DC
1µs / div

F430
2V / div DC
1µs / div

F465
5V / div DC
1µs / div

FROM DIAGRAM A2
FILTERS

TO DIAGRAM A7
SUPPLY & DC PROTECTION

L_LOW
AU_EN_NOT
GND_I
GND_O
VCC_10_POS
VCC_10_NEG
VSND_POS
VSND_NEG
OUT_LL
OUT_PROT
BAS316
BZX384-C4V7
7403 BC847BW
7402 BC847BW
7430 BC817-25
7455 BC807-25
7440 BC847BW
7415 LM311D
7465-2 IRF7343
7465-1 IRF7343
14V2
-0V04
9V7
-2V
-9V8
-14V2
14V3
-14V4
0V

3122 123 6002.5

CL 26532038_018.eps
190603

Audio Panel & Supply: Right High

2509 D3	2516 C4	2530 C7	2540 E6	2560 E8	3501 C2	3504 D2	3508 C4	3511 C3	3525 B5	3530 B6	3540 D6	3562 D8	5565 C9	6535 C7	6559 E7	7503 C2	7540 D7	7565-2 C8	F528 B6	F562 D8
2510 B3	2518 D5	2534 B8	2555 D7	2565 D9	3502 D2	3506 D3	3509 D4	3515 B4	3527 C5	3536 B7	3555 E6	5535 B8	6528 C5	6555 D6	6560 D7	7515 C4	7555 D6	7565-1 D8	F530 C6	F565 C8
2515 C4	2519 D5	2535 B8	2559 E8	2566 D9	3503 C2	3507 C3	3510 B3	3518 D4	3528 B5	3537 C8	3561 E7	5560 E8	6534 B7	6556 E6	7502 D3	7530 C6		F501 C3	F507 D4	F537 C8

A5 AUDIO AMPLIFIER RIGHT HIGH

F528
2V / div DC
1µs / div

F530
2V / div DC
1µs / div

F565
5V / div DC
1µs / div

FROM DIAGRAM A2
FILTERS

TO DIAGRAM A7
SUPPLY & DC PROTECTION

VSND_POS
5535 100MHZ
VCC_10_POS
2510 82p
3510 82K
3515 10R
3530 10R
3507 100K
3508 100K
2515 1u
2516 100n
3525 2K2
3528 1K
F528
3527 2K2
6528 BAS316
7515 LM311D
9V7
BAL
V+
STR|BAL
F507
0V
GND
V-
-9V8
-2V
3511 6K8
2509 1n5
3509 180R
3518 10R
2518 100n
2519 1u
VCC_10_NEG
R_HIGH
3503 1K
3501 1K
F501
7503 BC847BW
3504 4K7
3506 8K2
AU_EN_NOT
3502 4K7
7502 BC847BW
14V2
7530 BC817-25
-0V04
F530
-0V04
7555 BC807-25
-14V2
7540 BC847BW
0V
3540 10K
-14V2
3555 10R
2540 10n
6555 BZX384-C4V7
6556 BZX384-C4V7
6534 BZX384-C4V7
6535 BZX384-C4V7
6560 BZX384-C4V7
6559 BZX384-C4V7
3536 4M7
2534 220u
2535 100n
F537
3537 10R
7565-2 IRF7343
14V3
2530 100n
2555 100n
7565-1 IRF7343
3562 10R
-14V4
F562
F565
0V
5565 33u
OUT_RH
OUT_PROT
2565 220n
2566 220n
3561 4M7
2560 220u
2559 100n
5560 100MHZ
VSND_NEG
GND_I
GND_O

3122 123 6002.5

CL 26532038_019.eps
190603

Audio Panel & Supply: Right Low

2609 D4	2616 C4	2630 C7	2640 E7	2660 E8	3601 C3	3604 C2	3608 C4	3611 C4	3625 B5	3630 B6	3640 D6	3662 D8	5665 C9	6635 C7	6659 E7	7603 C2	7640 D7	7665-2 C8	F628 B6	F662 D8
2610 B3	2618 D5	2634 B8	2655 C7	2665 C9	3602 D2	3606 C3	3609 D4	3615 B5	3627 C5	3636 B8	3655 E6	5635 B8	6628 C6	6655 D6	6660 D7	7615 C4	7655 D6	7665-1 D8	F601 C3	F630 C7	F665 C8
2615 C4	2619 D5	2635 B8	2659 E8	2666 C9	3603 C2	3607 C4	3610 B3	3618 D4	3628 B6	3637 C8	3661 E8	5660 E8	6634 B7	6656 E6	7602 D3	7630 C6			F607 C4	F637 C8	

A6 AUDIO AMPLIFIER RIGHT LOW

F628
2V / div DC
1µs / div

F630
2V / div DC
1µs / div

F665
5V / div DC
1µs / div

FROM DIAGRAM A2
FILTERS

TO DIAGRAM A7
SUPPLY & DC PROTECTION

R_LOW 3603 1K 3601 1K F601
7603 BC847BW
3604 4K7
AU_EN_NOT 3602 4K7
7602 BC847BW
3606 8K2
F607
3607 100K 3608 100K
3611 22K
2610 82p 3610 82K
2615 1u 2616 100n
3625 2K2 3628 1K
3627 2K2 6628 BAS316
7615 LM311D 9V7
BAL STR|BAL V+ V- GND
2609 1n5 3609 180R
3618 10R 2618 100n 2619 1u
VCC_10_POS 3615 10R
VCC_10_NEG
3630 10R F628
14V2 7630 BC817-25 -0V04
F630
-0V04 7655 BC807-25 -14V2
7640 BC847BW 0V
3640 10K -14V2
3655 10R 2640 10n
6655 6656 BZX384-C4V7
VSND_POS 5635 100MHZ
6634 6635 BZX384-C4V7
3636 4M7 2634 220u 2635 100n
F637
7665-2 IRF7343 14V3
3637 10R
2630 100n 2655 100n
F665 0V
7665-1 IRF7343
3662 10R -14V4 F662
6660 6659 BZX384-C4V7
3661 4M7
5665 33u OUT_RL
2665 220n 2666 220n OUT_PROT
2660 220u 2659 100n 5660 100MHZ
VSND_NEG
GND_I GND_O

3122 123 6002.5

CL 26532038_020.eps
190603

Audio Panel & Supply: Supply and DC Protection

A7 SUPPLY & DC PROTECTION

F730 = 14V4
F735 = 9V
F740 = -14V4
F745 = -8V8

FROM DIAGRAM A3 AUDIO AMPLIFIER LEFT HIGH
FROM DIAGRAM A4 AUDIO AMPLIFIER LEFT LOW
FROM DIAGRAM A5 AUDIO AMPLIFIER RIGHT HIGH
FROM DIAGRAM A6 AUDIO AMPLIFIER RIGHT LOW

FROM 0302
PS6
POWER SUPPLY

0302 PH-S
F710 DC_PROT
F711 +9V_STBY
F712 F713 F714 5714 100MHZ
F717 F718 F719 5719 F720 100MHZ
F723 F724 F725 5725 100MHZ

SUPPLY

1730 T2.5AL 250V
F730 VSND_POS
7735 BC869
F735 VCC_10_POS
2730 220u 2732 220u 3732 2K7
F736 13V7
F732 9V8
7736 BC847BW
6732 BZX384-C10
F733 9V2
3733 1K
2734 1u

1740 T2.5AL 250V
F740 VSND_NEG
7745 BC868
F745 VCC_10_NEG
2740 220u 2742 220u 3742 2K7
F746 -13V7
F742 -9V7
7746 BC857BW
6742 BZX384-C10
F743 -9V2
3743 1K
2744 1u

RES=RESERVED
F796 F797 3799 F798 F799 RES

C704
C703
C702
GND_O

0305 SHIELDING 3.3
0390 SHIELDING 3.3
0391 SHIELDING 3.3
2799 10n

DC PROTECTION

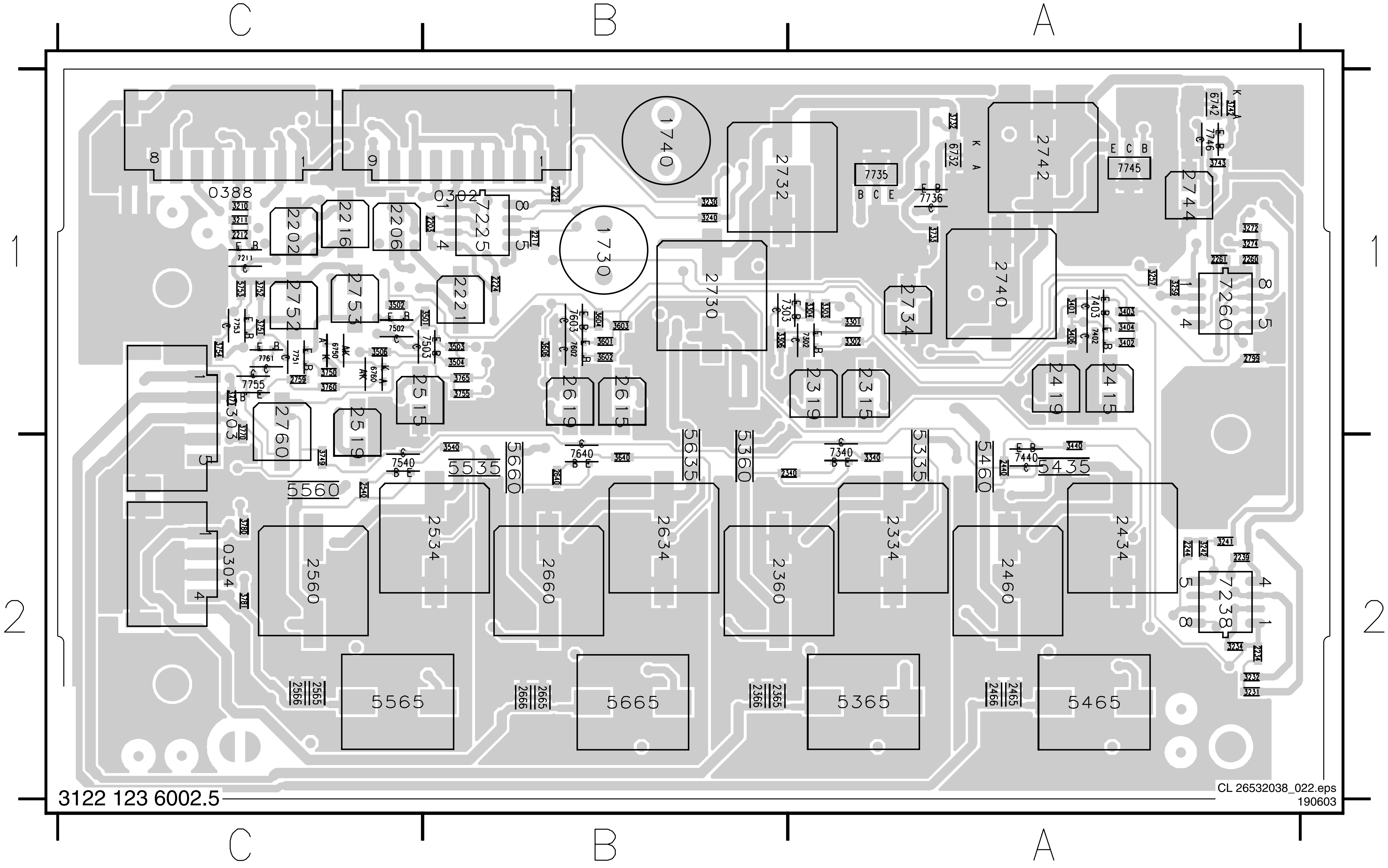
0303 PH-S
OUT_LH
OUT_PROT
OUT_LL
OUT_PROT
OUT_PROT
OUT_PROT
F771 F770
F776 F777
GND_O
F772
F774
NC.
LEFT HIGH
8 Ohm
LEFT LOW
3770 100K
3771 100K
2771 1n
2770 1n
2760 22u
3749 10K
F759
VCC_10_POS
3755 100K
VCC_10_NEG
3765 100K
+9V_STBY
5753 100MHZ
+9V_STBYA
2753 10u
3752 47K
2752 10u
8V7
7753 BC857BW
-0V2
3751 47K
7751 BC847BW
8V6
3754 1K
DC_PROT
6750 BAV99W
3750 470R
2759 1n
7761 BC857BW
7755 BC847BW
6760 BAV99W
3760 470R
3780 100K
3781 100K
OUT_RH
OUT_RL
0304 PH-S
F780 F781
F782
F784
F786 F787
RIGHT HIGH
8 Ohm
RIGHT LOW
2780 1n
2781 1n

3122 123 6002.5
CL 26532038_021.eps
190603

0302 C1 F770 A8
0303 A8 F771 A8
0304 E8 F772 A8
0305 E1 F774 A8
0390 E2 F776 A8
0391 E3 F777 A8
1730 B3 F780 E8
1740 D3 F781 E8
2730 C3 F782 F8
2732 C4 F784 F8
2734 D5 F786 F8
2740 E3 F787 F8
2742 E4 F796 E2
2744 E5 F797 E2
2752 C9 F798 E2
2753 C8 F799 E2
2759 D8
2760 B7
2770 B8
2771 B7
2780 F7
2781 F7
2799 F1
3732 C4
3733 C5
3742 E4
3743 E5
3749 C6
3750 C8
3751 C9
3752 C9
3754 C9
3755 D6
3760 D8
3765 E6
3770 B7
3771 B7
3780 E7
3781 E7
3799 E2
5714 C3
5719 D3
5725 D3
5753 B9
6732 C4
6742 E4
6750 D7
6760 D7
7735 C5
7736 C4
7745 D5
7746 E4
7751 C8
7753 C9
7755 D8
7761 D9
C702 F3
C703 E3
C704 E3
F710 C2
F711 C2
F712 C2
F713 C2
F714 C2
F717 D2
F718 D2
F719 D2
F720 D3
F723 D2
F724 D2
F725 D2
F730 B5
F732 C4
F733 C5
F735 C5
F736 C4
F740 D5
F742 E4
F743 E5
F745 D5
F746 E4
F759 C7

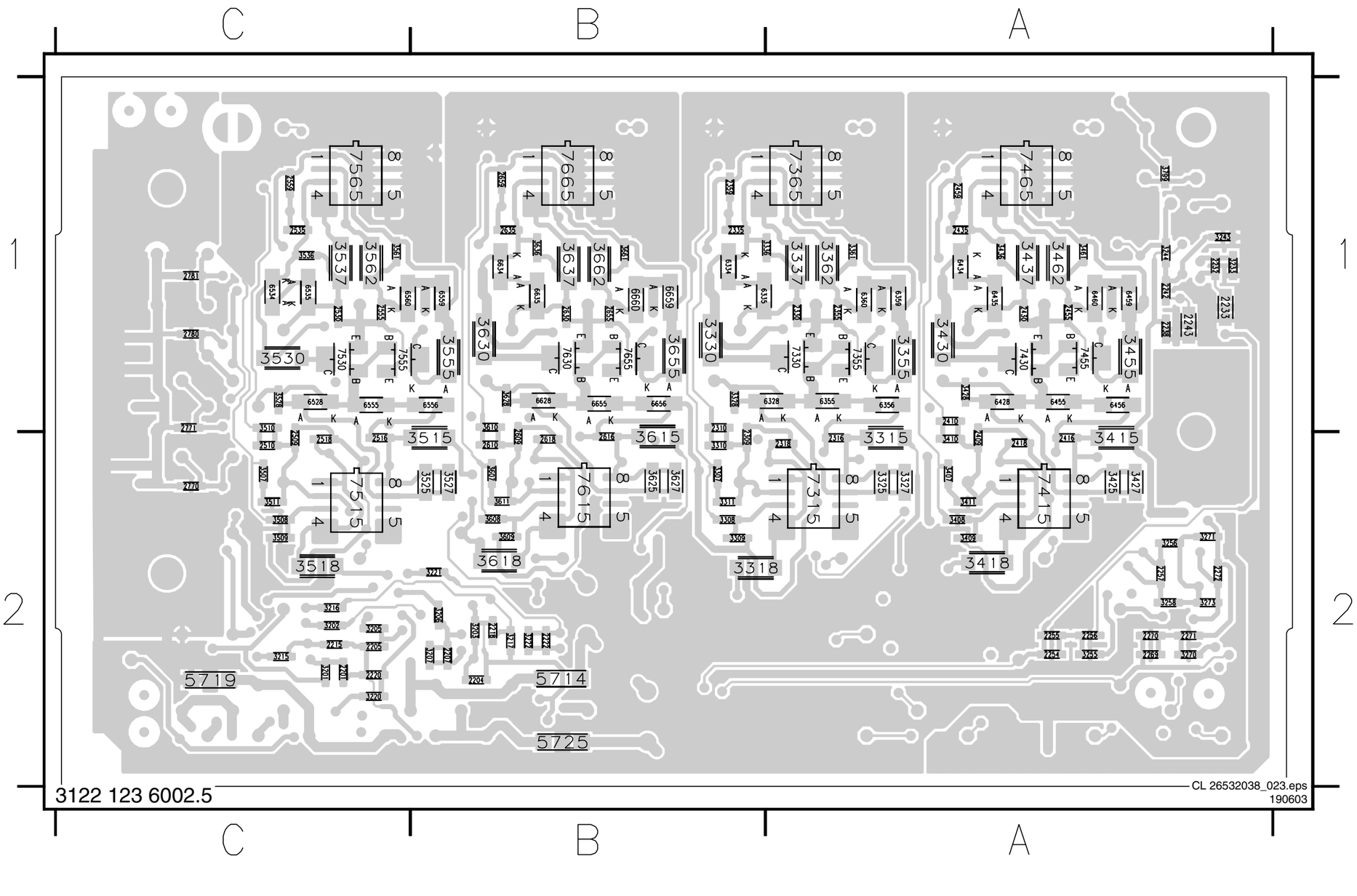
Layout Audio Panel (Top Side)

0302 B1	2216 C1	2315 A1	2440 A2	2566 C2	2734 A1	3211 C1	3272 A1	3403 A1	3601 B1	3749 C2	3780 C2	5565 C2	7225 B1	7503 B1	7753 C1
0303 C1	2217 B1	2319 A1	2460 A2	2615 B1	2740 A1	3230 B1	3274 A1	3404 A1	3602 B1	3750 C1	3781 C2	5635 B2	7238 A2	7540 C2	7755 C1
0304 C2	2221 B1	2334 A2	2465 A2	2619 B1	2742 A1	3231 A2	3301 A1	3406 A1	3603 B1	3751 C1	5335 A2	5660 B2	7260 A1	7602 B1	7761 C1
0388 C1	2224 B1	2340 A2	2466 A2	2634 B2	2744 A1	3232 A2	3302 A1	3440 A2	3604 B1	3752 C1	5360 B2	5665 B2	7302 A1	7603 B1	
1730 B1	2225 B1	2360 B2	2515 C1	2640 B2	2752 C1	3234 A2	3303 A1	3501 B1	3606 B1	3754 C1	5365 A2	5753 C1	7303 B1	7640 B2	
1740 B1	2234 A2	2365 B2	2519 C1	2660 B2	2753 C1	3240 B1	3304 A1	3502 C1	3640 B2	3755 B1	5435 A2	6732 A1	7340 A2	7735 A1	
2202 C1	2239 A2	2366 B2	2534 B2	2665 B2	2759 C1	3241 A2	3306 B1	3503 B1	3732 A1	3760 C1	5460 A2	6742 A1	7402 A1	7736 A1	
2203 B1	2244 A2	2415 A1	2540 C2	2666 B2	2760 C1	3242 A2	3340 A2	3504 B1	3733 A1	3765 B1	5465 A2	6750 C1	7403 A1	7745 A1	
2206 C1	2260 A1	2419 A1	2560 C2	2730 B1	2799 A1	3257 A1	3401 A1	3506 C1	3742 A1	3770 C1	5535 B2	6760 C1	7440 A2	7746 A1	
2212 C1	2261 A1	2434 A2	2565 C2	2732 B1	3210 C1	3259 A1	3402 A1	3540 B2	3743 A1	3771 C1	5560 C2	7211 C1	7502 C1	7751 C1	



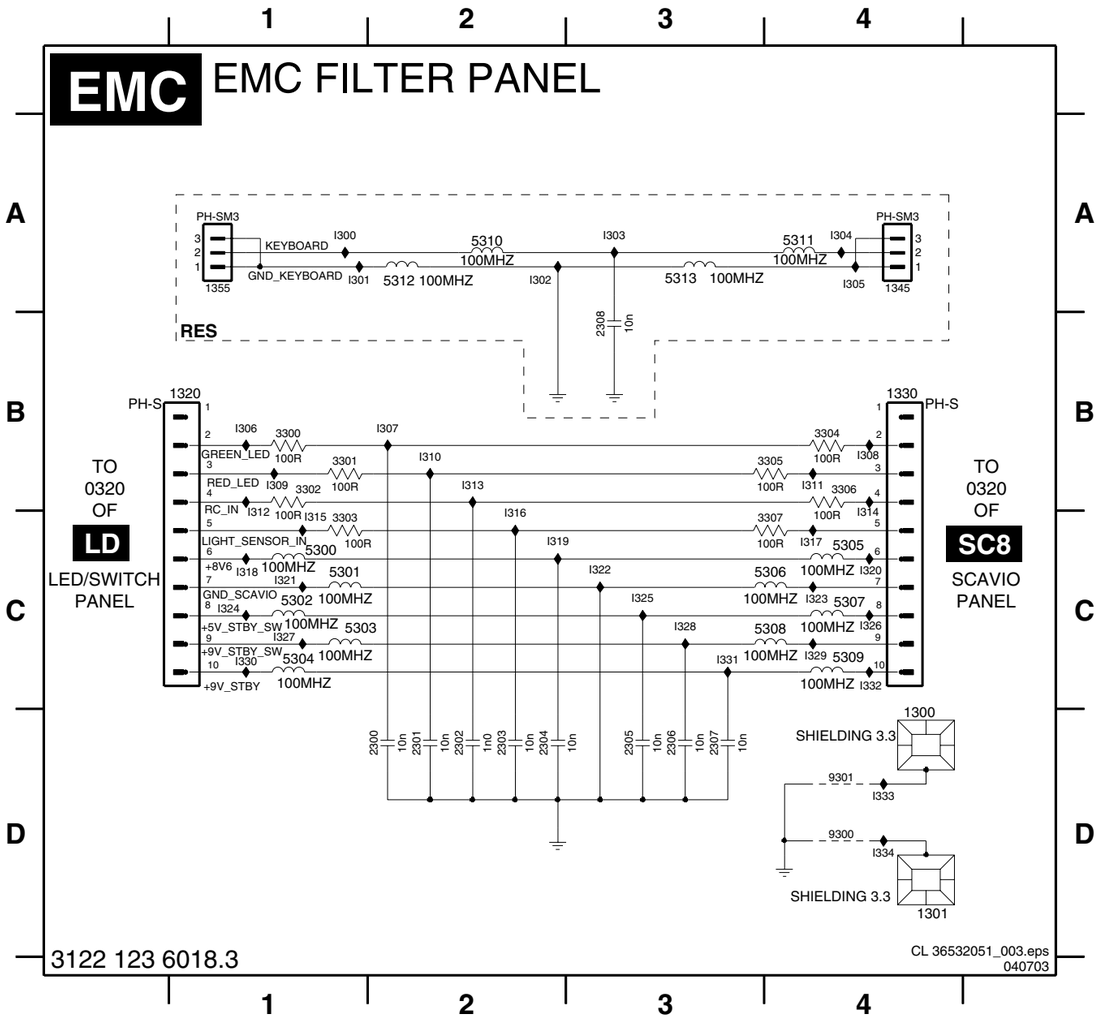
Layout Audio Panel (Bottom Side)

2201	C2	2255	A2	2359	B1	2535	C1	2781	C1	3243	A1	3318	B2	3411	A2	3509	C2	3607	B2	3661	B1	6434	A1	6634	B1	7515	C2
2204	B2	2256	A2	2409	A2	2555	C1	3201	C2	3244	A1	3325	A2	3415	A2	3510	C1	3608	B2	3662	B1	6435	A1	6635	B1	7530	C1
2205	C2	2257	A2	2410	A1	2559	C1	3202	C2	3255	A2	3327	A2	3418	A2	3511	C2	3609	B2	3799	A1	6455	A1	6655	B1	7555	C1
2207	B2	2269	A2	2416	A2	2609	B2	3203	B2	3256	A2	3328	B1	3425	A2	3515	B2	3610	B1	5714	B2	6456	A1	6656	B1	7565	C1
2215	C2	2270	A2	2418	A2	2610	B2	3205	C2	3258	A2	3330	B1	3427	A2	3518	C2	3611	B2	5719	C2	6459	A1	6659	B1	7615	B2
2218	B2	2271	A2	2430	A1	2616	B2	3206	B2	3270	A2	3336	A1	3428	A1	3525	B2	3615	B2	5725	B2	6460	A1	6660	B1	7630	B1
2220	C2	2272	A2	2435	A1	2618	B2	3207	B2	3271	A2	3337	A1	3430	A1	3527	B2	3618	B2	6328	A1	6528	C1	7315	A2	7655	B1
2222	B2	2309	B2	2455	A1	2630	B1	3215	C2	3273	A2	3355	A1	3436	A1	3528	C1	3625	B2	6334	B1	6534	C1	7330	A1	7665	B1
2232	A1	2310	B1	2459	A1	2635	B1	3216	C2	3307	B2	3361	A1	3437	A1	3530	C1	3627	B2	6335	B1	6535	C1	7355	A1		
2233	A1	2316	A2	2509	C2	2655	B1	3217	B2	3308	B2	3362	A1	3455	A1	3536	C1	3628	B1	6355	A1	6555	C1	7365	A1		
2238	A1	2318	A2	2510	C2	2659	B1	3220	C2	3309	B2	3407	A2	3461	A1	3537	C1	3630	B1	6356	A1	6556	B1	7415	A2		
2242	A1	2330	A1	2516	C2	2770	C2	3221	B2	3310	B2	3408	A2	3462	A1	3555	B1	3636	B1	6359	A1	6559	B1	7430	A1		
2243	A1	2335	B1	2518	C2	2771	C1	3222	B2	3311	B2	3409	A2	3507	C2	3561	C1	3637	B1	6360	A1	6560	C1	7455	A1		
2254	A2	2355	A1	2530	C1	2780	C1	3233	A1	3315	A2	3410	A2	3508	C2	3562	C1	3655	B1	6428	A1	6628	B1	7465	A1		



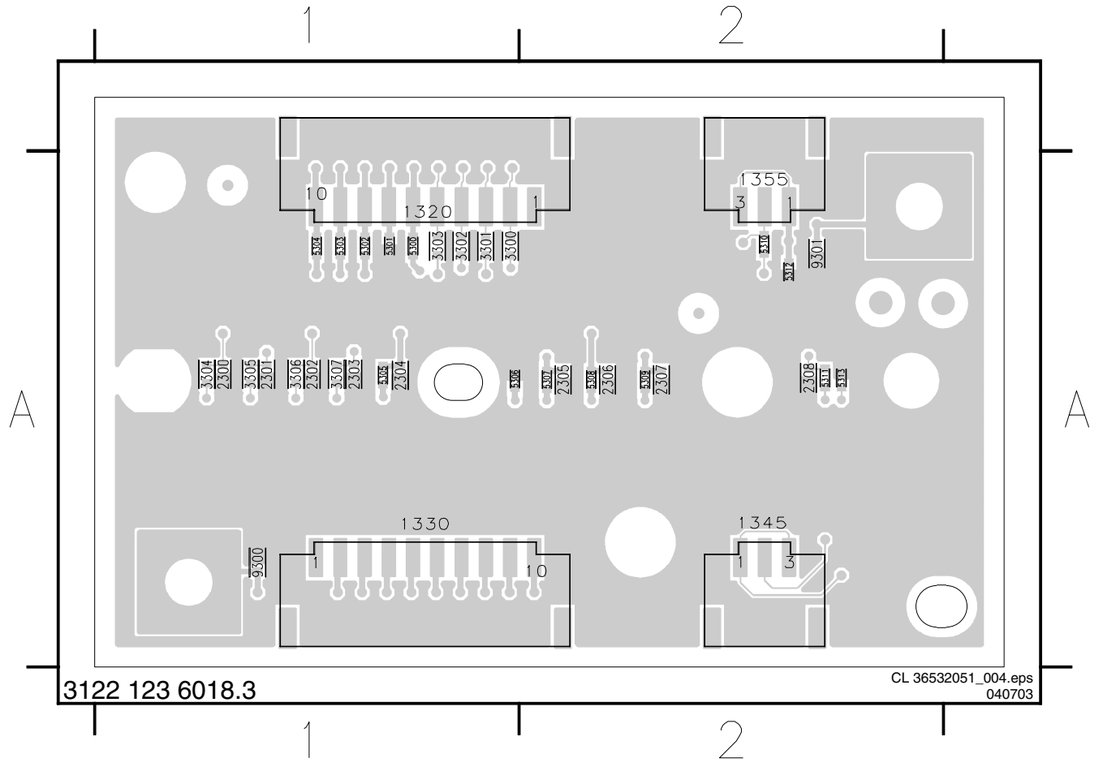
EMC Filter Panel

1300 D4	2301 D2	2308 A3	3306 B4	5305 C4	5312 A2	I303 A3	I310 B2	I317 C4	I324 C1	I331 C3
1301 D4	2302 D2	3300 B1	3307 C4	5306 C4	5313 A3	I304 A4	I311 B4	I318 C1	I325 C3	I332 C4
1320 B1	2303 D2	3301 B1	5300 C1	5307 C4	9300 D4	I305 A4	I312 C1	I319 C2	I326 C4	I333 D4
1330 B4	2304 D2	3302 B1	5301 C1	5308 C4	9301 D4	I306 B1	I313 B2	I320 C4	I327 C1	I334 D4
1345 A4	2305 D3	3303 C1	5302 C1	5309 C4	I300 A1	I307 B2	I314 C4	I321 C1	I328 C3	
1355 A1	2306 D3	3304 B4	5303 C1	5310 A2	I301 A1	I308 B4	I315 C1	I322 C3	I329 C4	
2300 D2	2307 D3	3305 B4	5304 C1	5311 A4	I302 A2	I309 B1	I316 C2	I323 C4	I330 C1	



Layout EMC Filter Panel (Top Side)

1320 A1	2300 A1	2304 A1	2308 A2	3303 A1	3307 A1	5303 A1	5307 A2	5311 A2	9301 A2
1330 A1	2301 A1	2305 A2	3300 A1	3304 A1	5300 A1	5304 A1	5308 A2	5312 A2	
1345 A2	2302 A1	2306 A2	3301 A1	3305 A1	5301 A1	5305 A1	5309 A2	5313 A2	
1355 A2	2303 A1	2307 A2	3302 A1	3306 A1	5302 A1	5306 A1	5310 A2	9300 A1	



LED/Switch Panel (for Sets with Speakers)

LED/SWITCH PANEL

FROM 0320
SC8
CONTROL FUNCTIONS OR 1320
EMC
EMC FILTER PANEL

0320
PH-S
GREEN_LED F102
RED_LED F103
RC_IN F104
LIGHT_SENSOR_IN F105
F106 5100 F101 +8V6
F107 100MHZ
+5V_STBY_SW F108 +5V_STBY_SW
+9V_STBY_SW F109
+9V_STBY F112

1101
ON / OFF SWITCH

4101

3101 150R
I102
6101 BZX384-C3V9
I103

+5V_STBY_SW
3102 100K
7103 BC857BW
3104 100K
7105 BC857BW

F110
F111
I106
3103 220R
3105 330R
6105 BZX384-C3V9
I104
I105
I107
6103-A TLMV3100
6103-B TLMV3100
3106 150R

GREEN
RED

3107 470R
4107

LED_DISPLAY F115
IR_TX F116
GREEN_LED
RED_LED
F119
IR_RX F120
0317
95009
ICONN for ITV only

+5V_STBY_SW
3108 10K
3109 100R
I109
I111
2107 100u

RC RECIEVER
7107 TSOP2236
VS
OUT
GND
CTRL CIRCUIT
INP
DEM
BAND PASS
AGC
PIN

+8V6
2120 10u

7120-B LM358D
7120-A LM358D
I127

3120 4K7
3121 4K7
I120 3123 10K I123
I125 3126 470K I126
2126 220n

3122 1K
3124 1K
3125 3K3
6127 TEMD5000
3127 470K

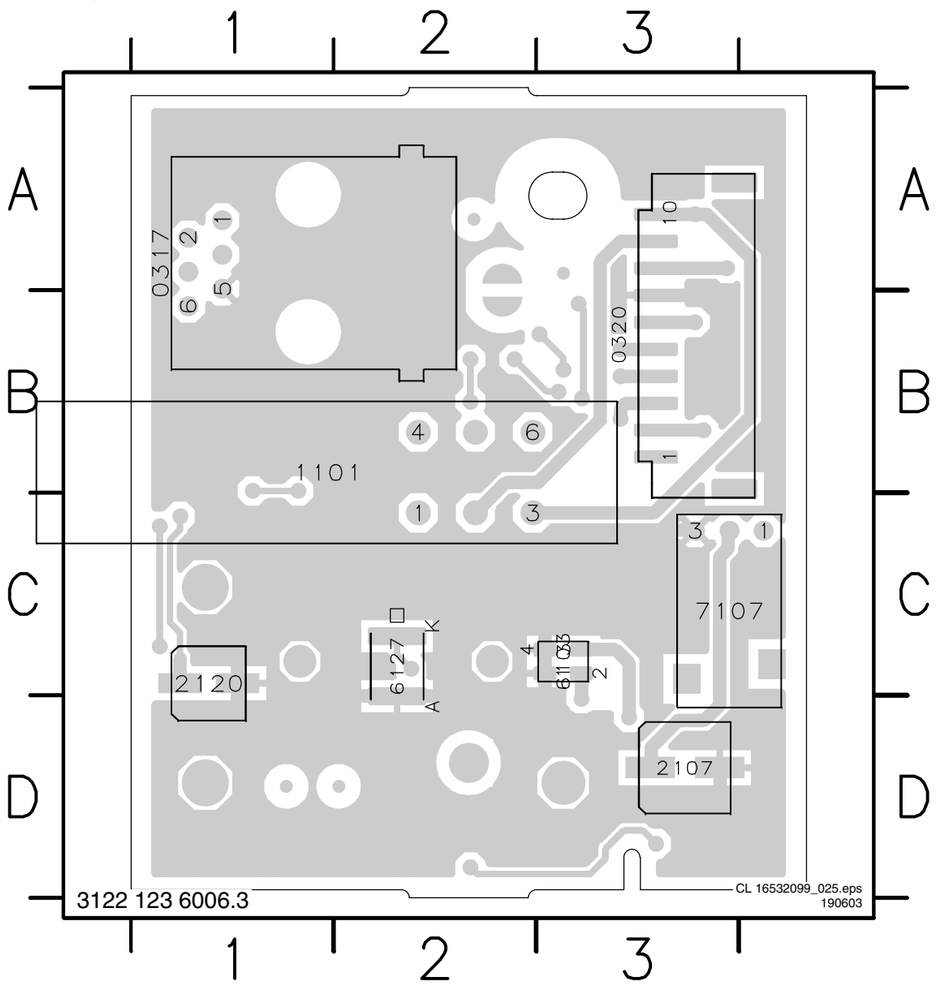
LIGHT SENSOR

3122 123 6006.3

CL 36532051_032.EPS
240603

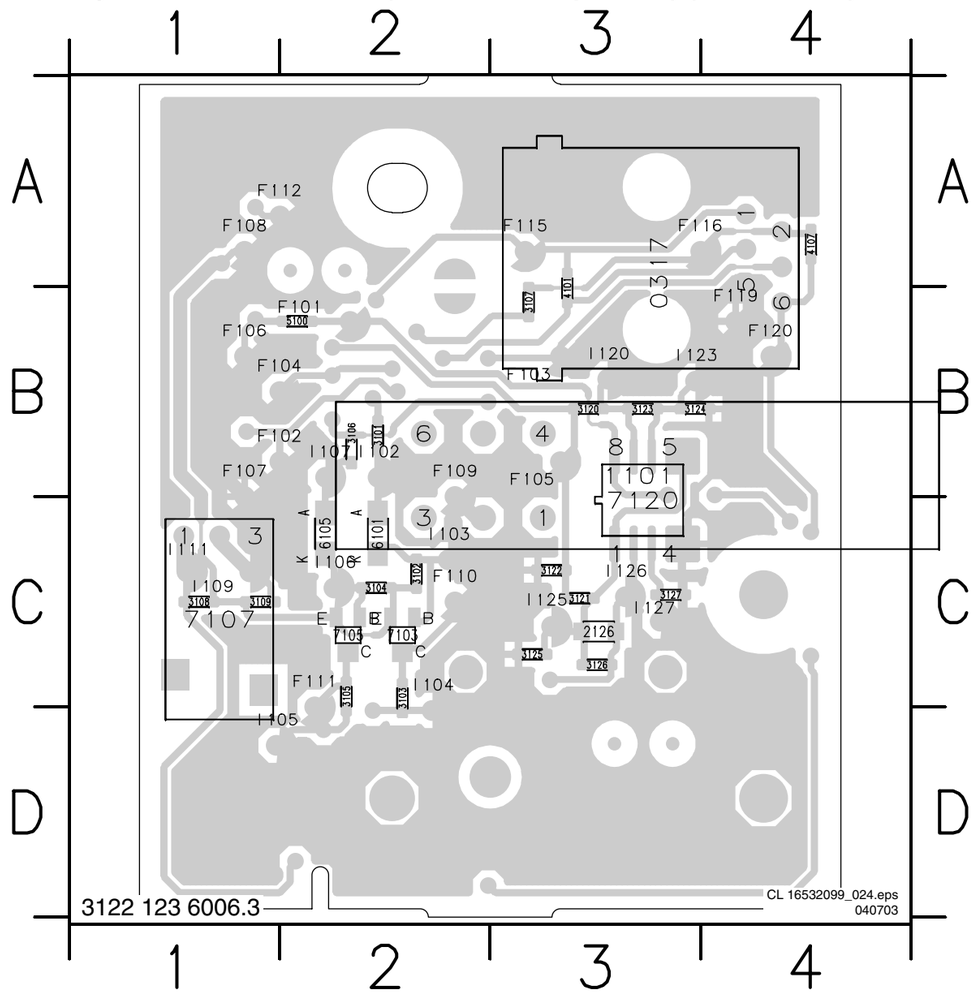
0317 A9
0320 B1
1101 D3
2107 C7
2120 E5
2126 F6
3100 C2
3101 C4
3102 B4
3103 C5
3104 B6
3105 C5
3106 D6
3107 B6
3108 B7
3109 B7
3120 E4
3121 F4
3122 F3
3123 F4
3124 F5
3125 F5
3126 F6
3127 F6
4101 C3
4107 B6
6101 C4
6103-A C5
6103-B D5
6105 C6
6127 F6
7103 B5
7105 B5
7107 C9
7120-A E6
7120-B E4
F101 C2
F102 C2
F103 C2
F104 C2
F105 C2
F106 C1
F107 C1
F108 C2
F109 D2
F110 C5
F111 C6
F112 D2
F115 A9
F116 A9
F119 B9
F120 B9
I102 B4
I103 B4
I104 C5
I105 C5
I106 C6
I107 C6
I109 C7
I111 C7
I120 F4
I123 F5
I125 E5
I126 E6
I127 E6

Layout LED/Switch Panel (for Sets with Speakers) (Top Side)



0317 A1
0320 B3
1101 B1
2107 D3
2120 C1
6103 C3
6127 C2
7107 C3

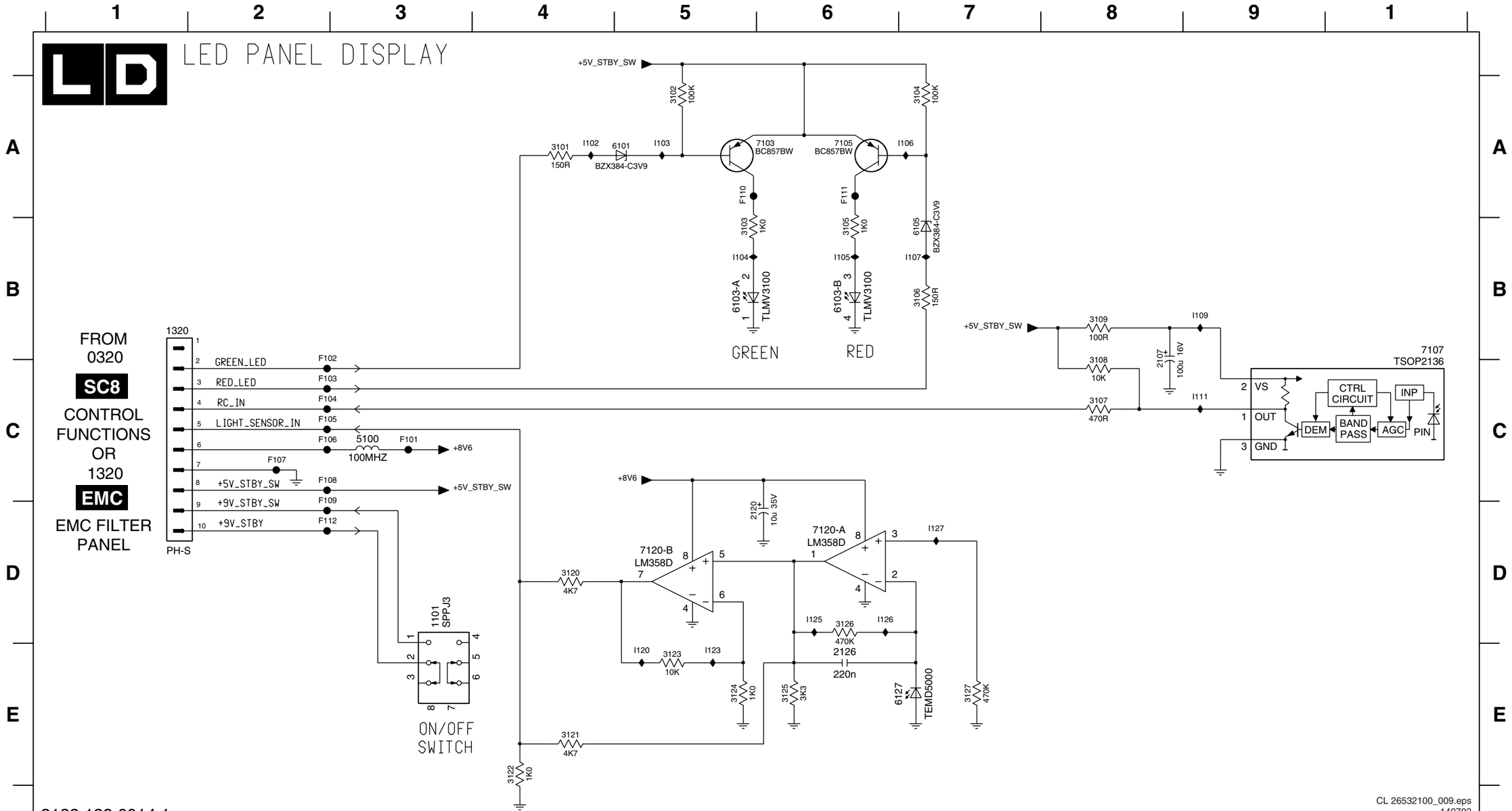
Layout LED/Switch Panel (for Sets with Speakers) (Bottom Side)



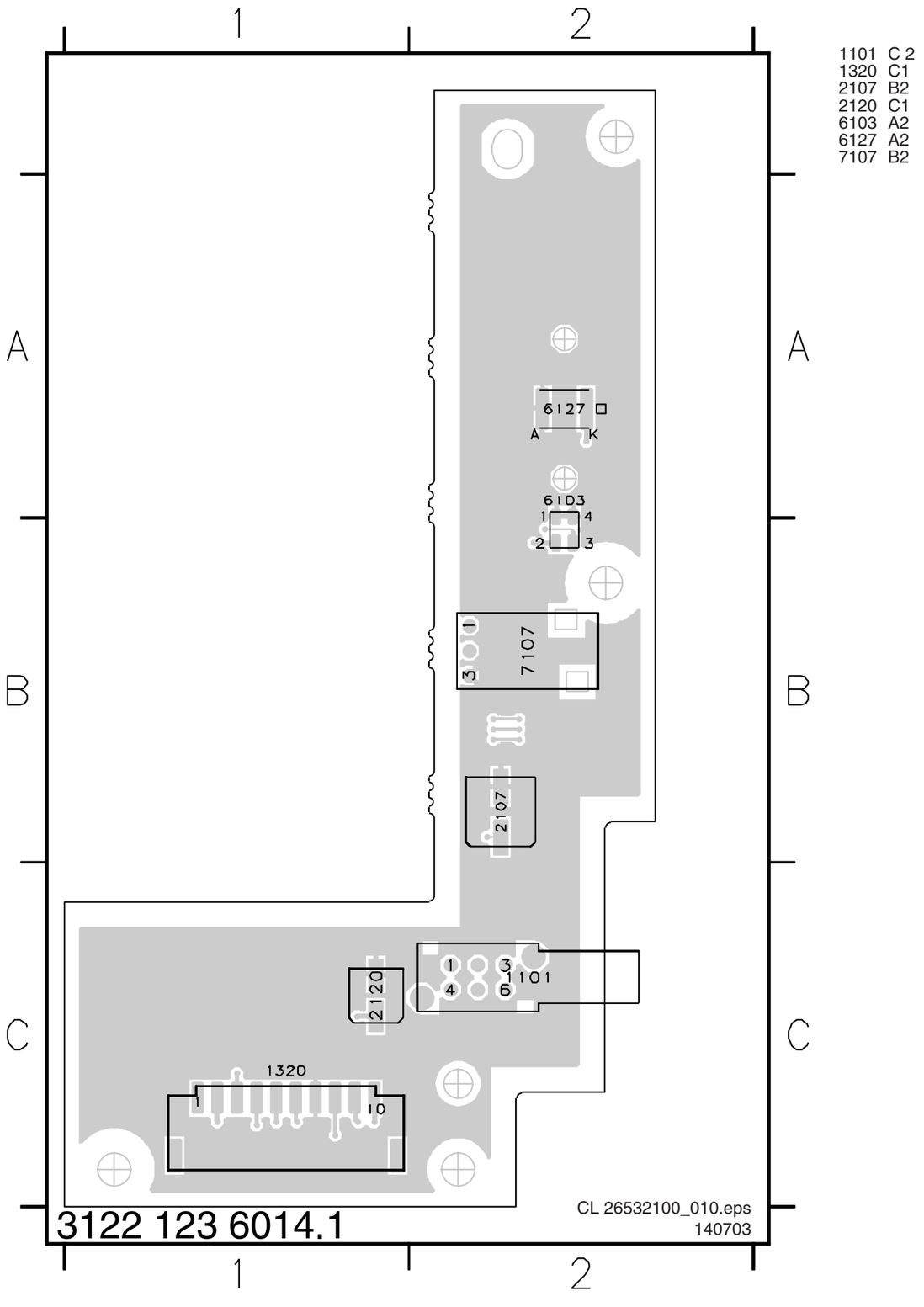
0317 A4
1101 B3
2126 C3
3101 B2
3102 C2
3103 C2
3104 C2
3105 C2
3106 B2
3107 B3
3108 C1
3109 C1
3120 B3
3121 C3
3122 C3
3123 B3
3124 B3
3125 C3
3126 C3
3127 C3
4101 B3
4107 A4
5100 B2
6101 C2
6105 C2
7103 C2
7105 C2
7107 C1
7120 C3

LED Panel Display (for Speakerless Sets)

1101 D3	2126 E6	3104 A7	3108 C8	3122 E4	3126 D6	6103-A B5	7103 A5	7120-B D5	F104 C2	F108 C2	F112 D2	I105 B6	I111 C9	I126 D6
1320 B1	3101 A4	3105 B6	3109 B8	3123 E5	3127 E7	6103-B B6	7105 A6	F101 C2	F105 C2	F109 D2	I102 A4	I106 A7	I120 E5	I127 D7
2107 B8	3102 A5	3106 B7	3120 D4	3124 E5	5100 C2	6105 B7	7107 B10	F102 C2	F106 C2	F110 A5	I103 A5	I107 B7	I123 E5	
2120 D5	3103 B5	3107 C8	3121 E4	3125 E6	6101 A5	6127 E7	7120-A D6	F103 C2	F107 C2	F111 A6	I104 B5	I109 B9	I125 D6	

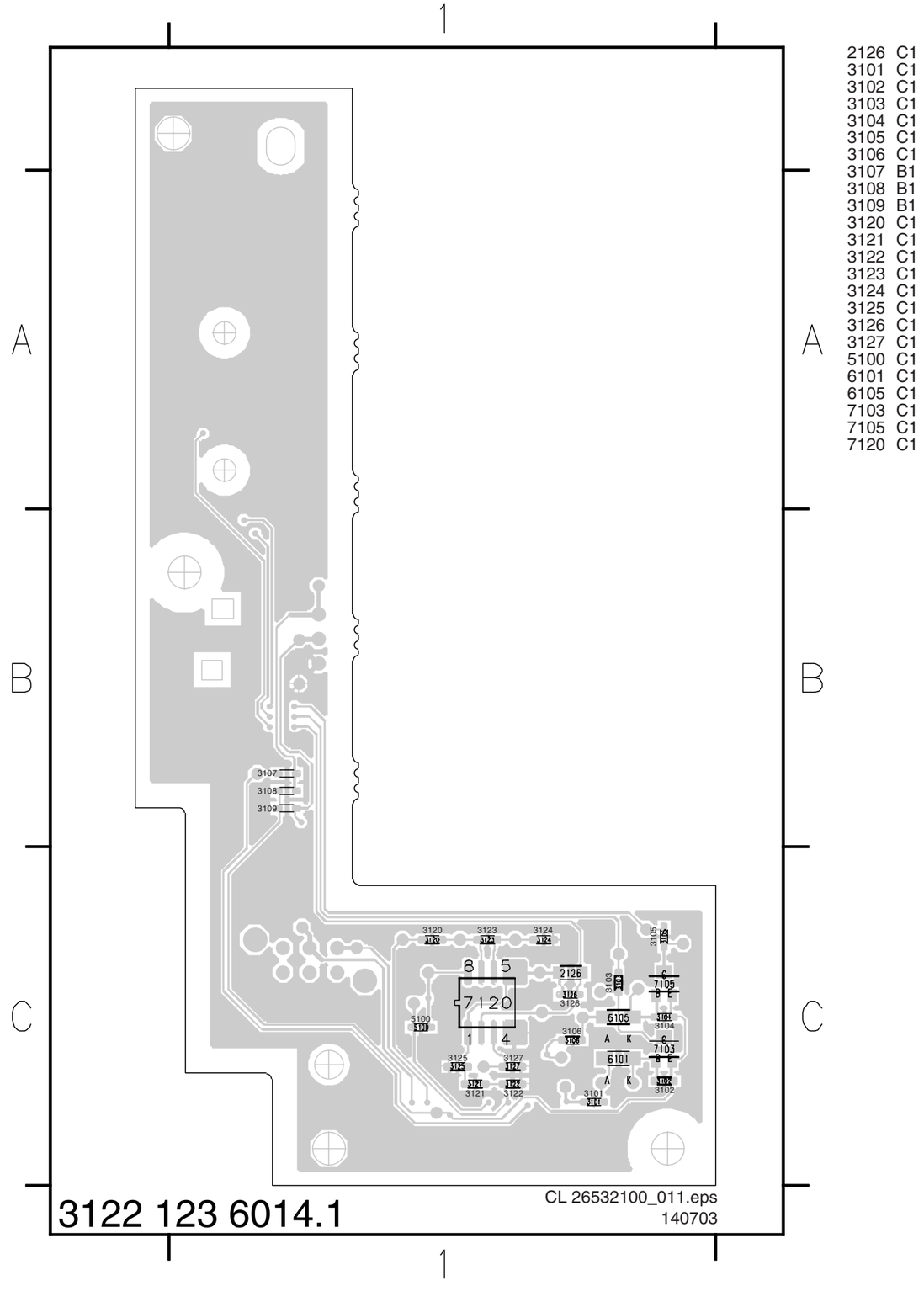


Layout LED Panel Display (for Speakerless Sets) (Top Side)



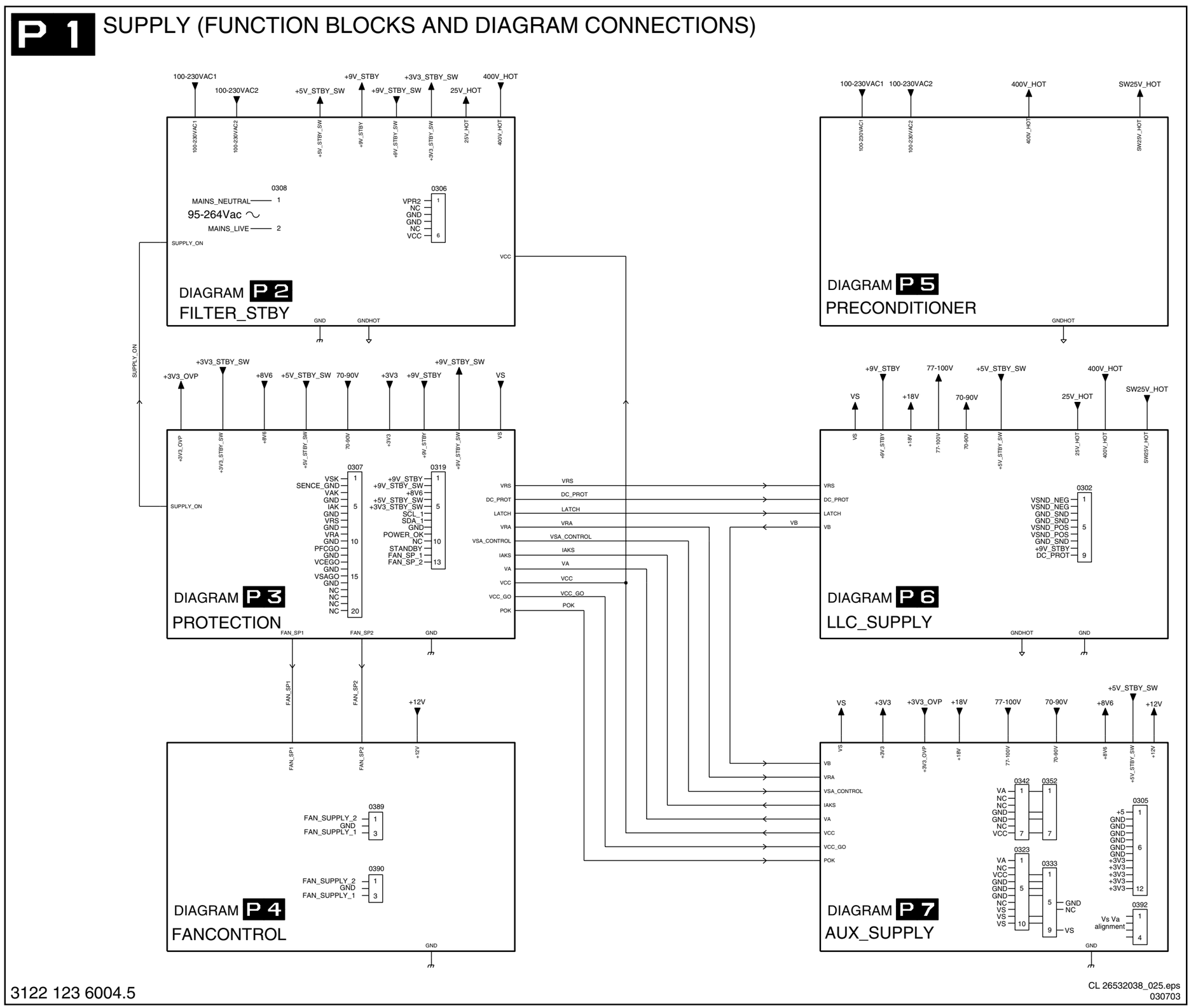
1101 C 2
1320 C1
2107 B2
2120 C1
6103 A2
6127 A2
7107 B2

Layout LED Panel Display (for Speakerless Sets) (Bottom Side)



2126 C1
3101 C1
3102 C1
3103 C1
3104 C1
3105 C1
3106 C1
3107 B1
3108 B1
3109 B1
3120 C1
3121 C1
3122 C1
3123 C1
3124 C1
3125 C1
3126 C1
3127 C1
5100 C1
6101 C1
6105 C1
7103 C1
7105 C1
7120 C1

Power Supply Panel (FM23 AC): Function Blocks and Connection Diagram



3122 123 6004.5

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Power Supply Panel (FM23 AC): Mains Filter and Standby Supply

P 2 FILTER_STBY

MAINS FILTER

MAINS INPUT 95-264Vac

B2P3-VH

T6.3AH 250V 19181

COLD GROUND

HOT GROUND

TO P 5 PRECONDITIONER

100-230VAC1

100-230VAC2

RELAY CONTROL

SUPPLY_ON

FROM P 3 PROTECTION

FROM P 5 PRECONDITIONER

400V_HOT

STANDBY SUPPLY

CONTROL

TO P 6 LLC_SUPPLY

25V_HOT

+9V_STBY

TO P 3 P 6 PROTECTION LLC_SUPPLY

+9V_STBY_SW

FROM P 3 PROTECTION

SWITCH

+3V3_STBY_SW

TO P 3 PROTECTION

+5V_STBY_SW

TO P 3 PROTECTION P 6 LLC_SUPPLY P 7 AUX_SUPPLY

+3V3_STBY_SW

TO CN6 PDP (DISPLAY)

VCC

FROM P 7 AUX_SUPPLY

I407 = 0V
F411 = 0V
F412 = 4V2
F500 = 380V
F502 = 8V7
F503 = 3V3
I504 = 19V
I508 = 1V3
I513 = 2V5
I514 = 2V5
I516 = 8V1
I517 = 5V

F404 100V / div DC 10ms / div

F407 100V / div DC 10ms / div

I406 100 V / div DC 10ms / div

F510 200 V / div DC 10µs / div

MEASURED DC-VOLTAGES

NORMAL . .

STANDBY (. . .)

0203 HEATSINK

0201 MECHPART

1404 SHIELDING 3.3

1405 SHIELDING 3.3

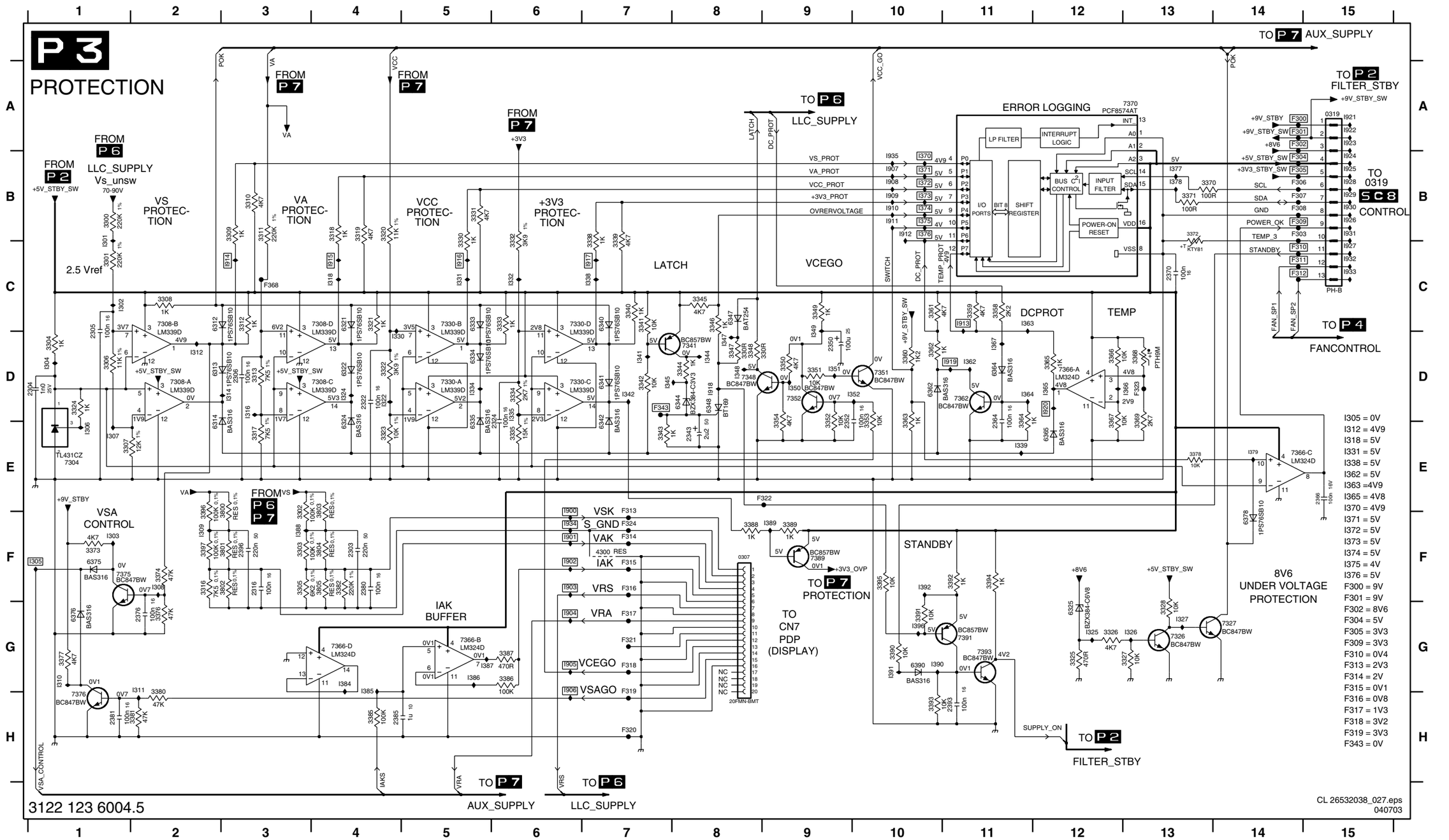
3122 123 6004.5

CL 26532038_026.eps 040703

0201 I5	I407 B9	3530 G12	I404 A7
0203 I4	I408 A10	5401 B4	I405 B7
0306 G10	I409 A10	5402 B5	I406 A9
0308 B1	I410 A12	5500 F6	
1400 B3	I411 C11	5505 F9	
1401 H9	I412 D10	6460 D11	
1402 A4	I413 C12	6461 C11	
1404 I9	I414 D12	6470 D13	
1405 I10	I415 D12	6471 C13	
1450 B8	I416 D12	6501 G6	
1460 B10	I417 C13	6502 G6	
2400 B3	I418 B2	6503 E6	
2401 B5	I501 E4	6504 E7	
2402 B2	I502 E5	6505 F7	
2403 B1	I503 E5	6510 E3	
2404 B4	I504 E5	6511 E4	
2405 B4	I505 E6	6512 E5	
2406 B5	I506 E7	6513 E6	
2407 B5	I507 F7	6520 F11	
2465 C11	I508 G4	6530 G12	
2503 F5	I509 G4	6531 I12	
2504 G4	I510 G6	7460 D11	
2505 F5	I511 G6	7465 C11	
2507 E7	I512 H7	7470 D13	
2508 F7	I513 H7	7500 G5	
2509 F7	I514 I7	7501 H6	
2510 F7	I515 G11	7502 I7	
2511 H7	I516 G12	7530 G12	
2512 I7	I517 H12	7531 H12	
2513 G4	I518 E6	7540 H11	
2530 G11	I519 F9	F400 C1	
2532 G12		F401 B1	
2533 I12		F402 B2	
2540 H11		F403 B2	
2541 H11		F404 B2	
3400 B3		F405 B2	
3401 B2		F406 B1	
3402 B2		F407 B2	
3403 C2		F408 B3	
3404 A4		F409 B3	
3450 A10		F410 B3	
3451 A10		F411 D13	
3452 A11		F412 E12	
3460 D10		F500 F5	
3461 D10		F501 F5	
3463 D11		F502 E8	
3465 D12		F503 F8	
3467 C12		F504 F7	
3469 D12		F505 F7	
3470 D12		F509 G9	
3501 H7		F510 H9	
3502 H7		I400 A4	
3503 I8		I401 A3	
3504 I8		I402 A5	
3505 H8		I403 B4	
3506 F4			
3507 F4			
3508 E5			
3520 G11			

Power Supply Panel (FM23 AC): Protections

0307 F8	2350 D9	2396 F3	3309 B3	3321 C4	3332 B6	3344 D8	3354 D9	3367 D12	3378 E13	3391 G10	3803 E4	6325 G12	6362 D10	7308-C D4	7351 D10	7389 F9	F307 B14	F317 G7	I301 B1	I311 G2	I330 D4	I345 D7	I365 D12	I377 B13	I391 G10	I907 B10	I917 C7	I927 C15
0319 A15	2352 D9	3300 B1	3310 B3	3322 D4	3333 C6	3345 C8	3358 C11	3368 D13	3380 H2	3392 F11	3804 F4	6333 C5	6364 D11	7308-D C4	7352 D9	7391 G11	F308 B14	F318 G7	I302 C1	I312 D2	I331 C5	I347 D8	I366 D13	I378 B13	I392 F10	I908 B10	I918 D8	I928 B15
2303 F4	2364 D11	3301 C1	3311 B3	3323 E4	3334 C6	3346 C8	3359 C11	3369 D13	3381 H2	3393 H10	3805 F4	6334 D5	6365 E12	7326 G13	7362 D11	7393 G11	F309 B14	F319 H7	I303 F1	I314 D3	I332 C6	I348 D8	I367 D11	I379 E14	I396 G10	I909 B10	I919 D11	I929 B15
2304 D1	2366 E15	3302 F3	3312 C3	3324 D1	3335 E6	3347 D8	3360 D10	3370 B13	3382 F4	3394 F11	4300 F7	6335 E5	6375 F1	7327 G14	7366-A D12	F300 A14	F310 C14	F320 H7	I304 D1	I316 D3	I333 D5	I349 C9	I370 B10	I384 G4	I900 E6	I910 B10	I920 D12	I930 B15
2305 C1	2370 C13	3303 F3	3313 D3	3325 G12	3338 B7	3348 D8	3361 C10	3371 B13	3385 H4	3395 F10	6312 C2	6340 C7	6376 G1	7330-A D5	7366-B G5	F301 A14	F311 C14	F321 G7	I305 F1	I318 C4	I335 D6	I350 D9	I371 B10	I385 G5	I901 F6	I911 B10	I921 A15	I931 B15
2306 D3	2376 G2	3304 D1	3316 F2	3326 G12	3339 B7	3349 C9	3362 D10	3372 B13	3386 G6	3396 F2	6313 D2	6341 D7	6378 F14	7330-B C5	7366-C E14	F302 A14	F312 C14	F322 E9	I306 E1	I322 D4	I338 C7	I351 D9	I372 B10	I386 G5	I902 F6	I912 B10	I922 A15	I932 C15
2316 F3	2380 F4	3305 F3	3317 E3	3327 G13	3340 C7	3350 D9	3363 D10	3373 F1	3387 G6	3397 F2	6314 E2	6342 E7	6390 G10	7330-C D6	7366-D G4	F303 B14	F313 F7	F323 D13	I307 E1	I324 D4	I339 E11	I352 D10	I373 B10	I387 G5	I903 F6	I913 C11	I923 A15	I933 C15
2322 D4	2381 H1	3306 D1	3318 B4	3328 G13	3341 C7	3351 D9	3364 D11	3374 F2	3388 F8	3800 E3	6321 C4	6344 D8	7304 E1	7330-D C6	7370 A13	F304 B14	F314 F7	F324 F7	I308 F2	I325 G12	I340 D7	I362 D11	I374 B10	I388 F3	I904 G6	I914 C3	I924 B15	I934 F6
2324 D6	2385 H4	3307 E1	3319 B4	3330 B5	3342 D7	3352 D9	3365 D12	3376 G2	3389 F9	3801 F3	6322 D4	6347 C8	7308-A D2	7341 D8	7375 F2	F305 B14	F315 F7	F343 D7	I309 F2	I326 G13	I342 D7	I363 C11	I375 B10	I389 F9	I905 G6	I915 C4	I925 B15	I935 B10
2343 E8	2393 H11	3308 C2	3320 B4	3331 B5	3343 E7	3353 D10	3366 D12	3377 G1	3390 G10	3802 F3	6324 E4	6348 D8	7308-B C2	7348 D8	7376 H1	F306 B14	F316 F7	F368 C3	I310 G1	I327 G13	I344 D8	I364 D11	I376 B10	I390 G10	I906 G6	I916 C5	I926 B15	



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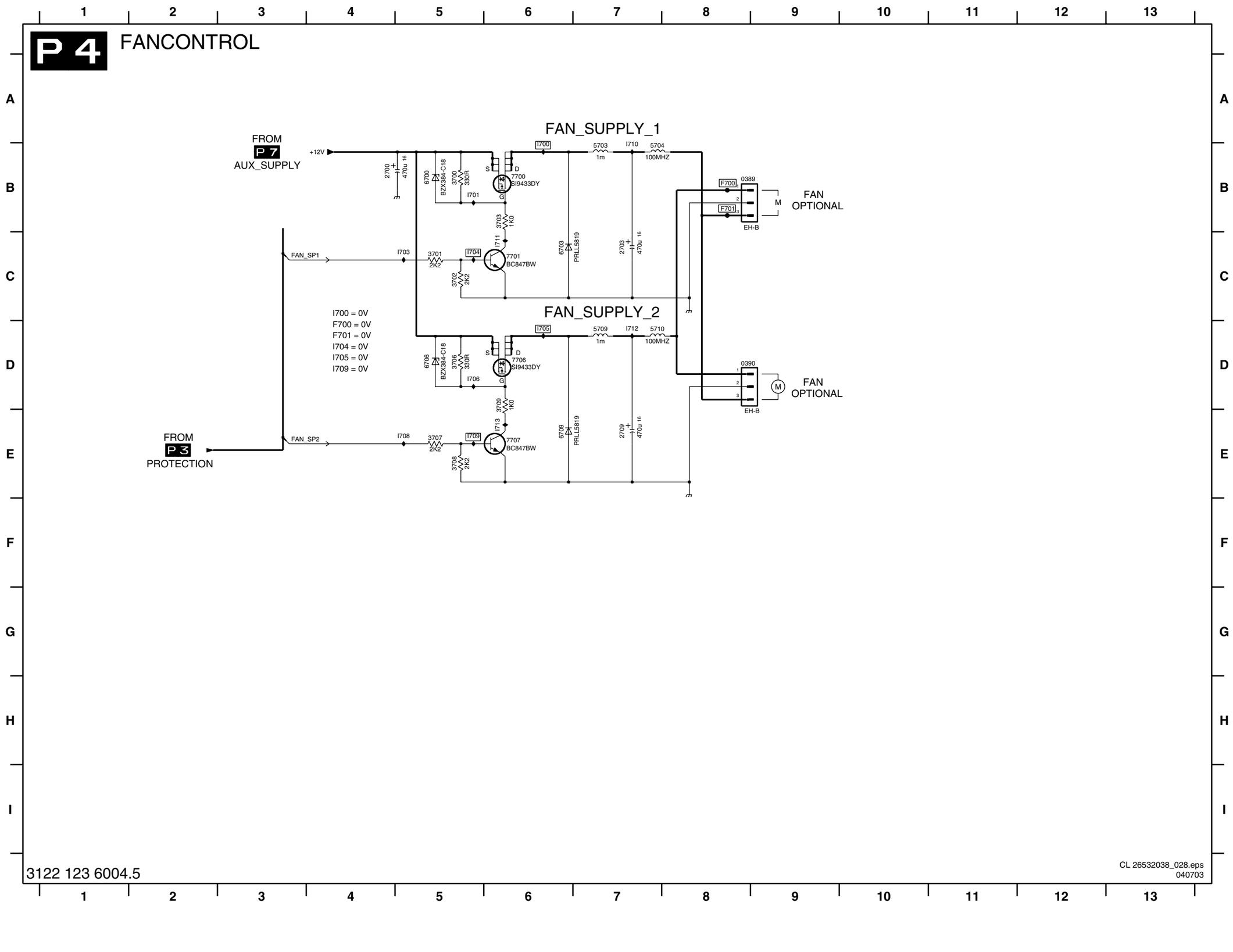
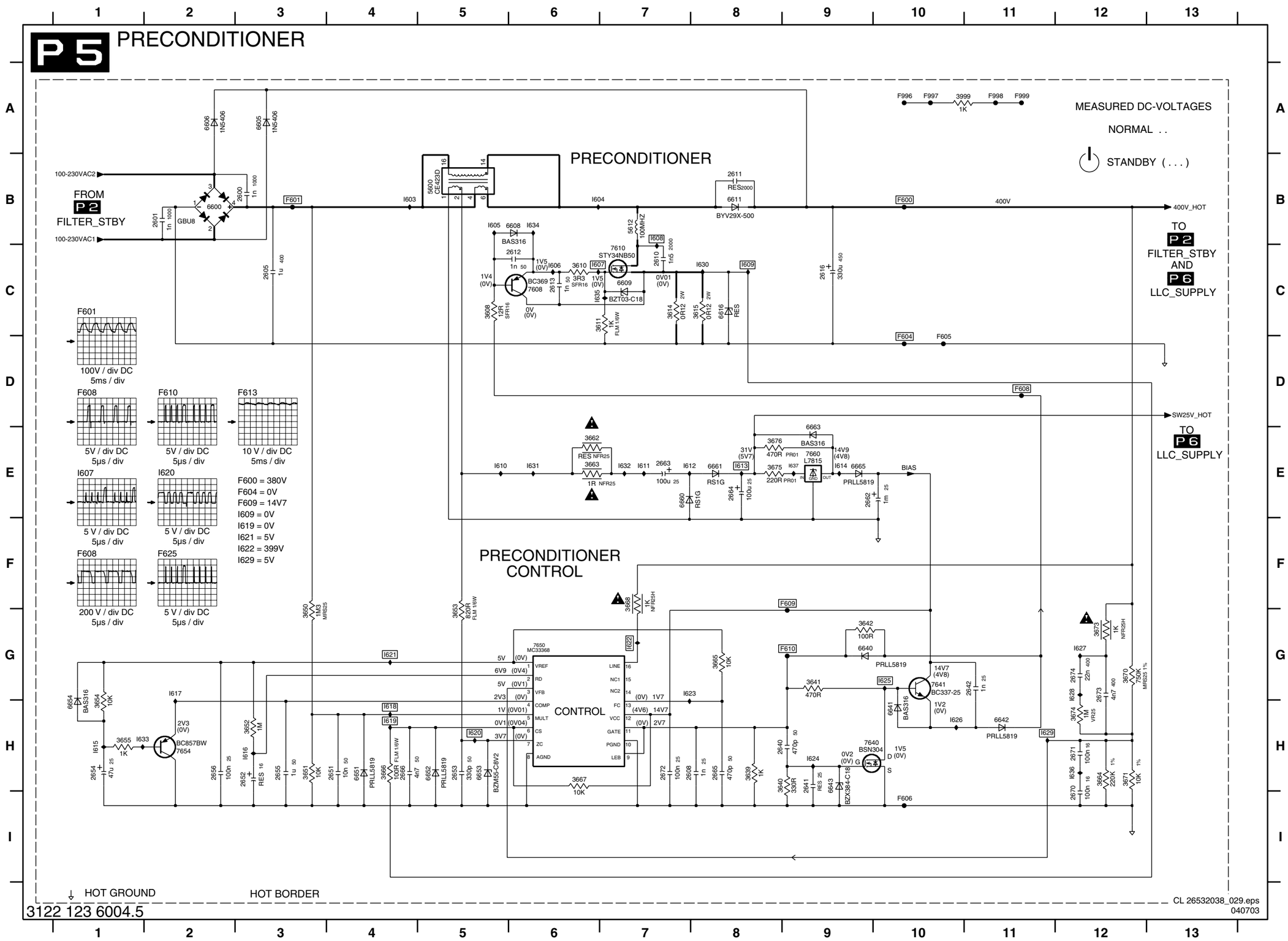
Power Supply Panel (FM23 AC): Fan Control



3122 123 6004.5

CL 26532038_028.eps
040703

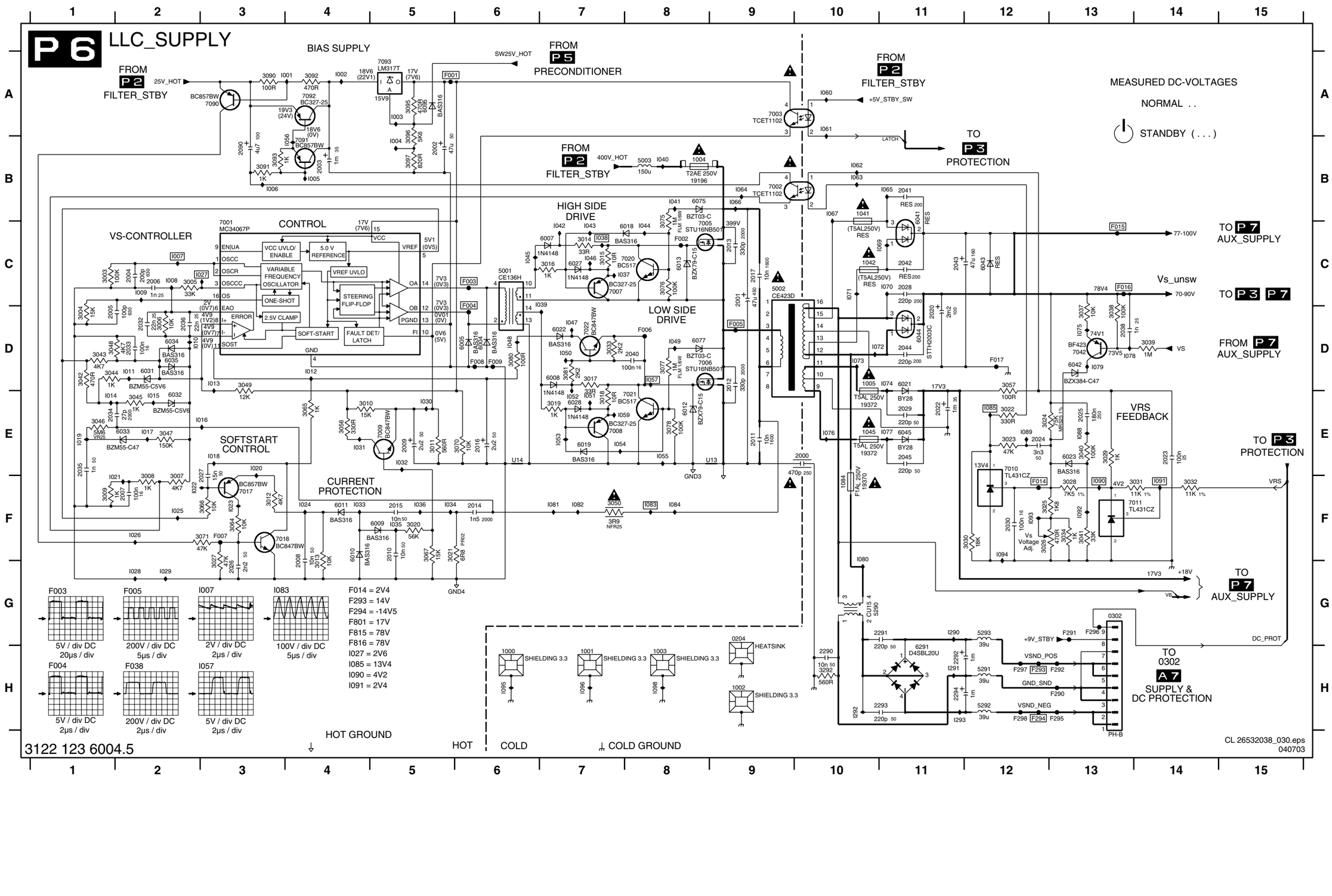
Power Supply Panel (FM23 AC): Pre-Conditioner



3122 123 6004.5

2600 B3
2601 B2
2605 C3
2608 H8
2610 C7
2611 B8
2612 C6
2613 C6
2616 C9
2640 H9
2641 H9
2642 G11
2651 H4
2652 H3
2653 H5
2654 H1
2655 H3
2656 H2
2662 E9
2663 E7
2664 E8
2665 H8
2666 H4
2670 I12
2671 H12
2672 H7
2673 G12
2674 G12
3608 C5
3610 C6
3611 C7
3614 C7
3615 C8
3639 H8
3640 H9
3641 G9
3642 G9
3650 G3
3651 H3
3652 H3
3653 G5
3654 H1
3655 H1
3662 E6
3663 E6
3664 H12
3665 G8
3666 H4
3667 H6
3668 F7
3670 G12
3671 H12
3673 G12
3674 H12
3675 E8
3676 E8
3999 A10
5600 B5
5612 B7
6600 B2
6605 A3
6606 A2
6608 B6
6609 C7
6611 B8
6616 C8
6640 G9
6641 H10
6642 H11
6643 H9
6651 H4
6652 H5
6653 H5
6654 H1
6660 E7
6661 E8
6663 E9
6665 E9
7608 C6
7610 C7
7640 H9
7641 G10
7650 G6
7654 H2
7660 E9
F600 B10
F601 B3
F604 D10
F605 D10
F606 I10
F608 D11
F609 F9
F610 G9
F996 A10
F997 A10
F998 A11
F999 A11
I603 B4
I604 B6
I605 B5
I606 C6
I607 C6
I608 B7
I609 C8
I610 E5
I611 E7
I612 E7
I613 E8
I614 E9
I615 H1
I616 H3
I617 G2
I618 H4
I619 H4
I620 H5
I621 G4
I622 G7
I623 G7
I624 H9
I625 G10
I626 H10
I627 G12
I628 G12
I629 H11
I630 C8
I631 E6
I632 E7
I633 H1
I634 B6
I635 C6
I636 H12
I637 E9

Power Supply Panel (FM23 AC): LLC Supply



Power Supply Panel (FM23 AC): Aux Supply

P 7 AUX_SUPPLY

FROM P 6 LLC_SUPPLY

MEASURED DC-VOLTAGES
NORMAL . .
STANDBY . .

VA-SUPPLY

+3V3-SUPPLY

VCC-SUPPLY

SEQUENCE DISCHARGE

TO P 3 PROTECTION

FROM P 2 FILTER_STBY

TO P 2 P 3 FILTER_STBY

TO P 3 PROTECTION

TO 0305 5C8 CONTROL-FUNCTIONS

TO P 3

TO P 6 P 3

TO P 2 P 3

TO CN33 PDP (DISPLAY)

TO CN23 PDP (DISPLAY)

TO CN42 PDP (DISPLAY)

TO CN52 PDP (DISPLAY)

TO P 4 FANCONTROL

TO P 3 PROTECTION

F116 = 12V4
F261 = 3V3
I101 = 76V
I124 = 10V6
I127 = 2V8
I128 = 3V9
I132 = 2V6
I200 = 97V
I201 = 78V3
I202 = 0V
I208 = 0V
I213 = 0V
I214 = 14V2
I220 = 9V
I261 = 17V3
I266 = 0V

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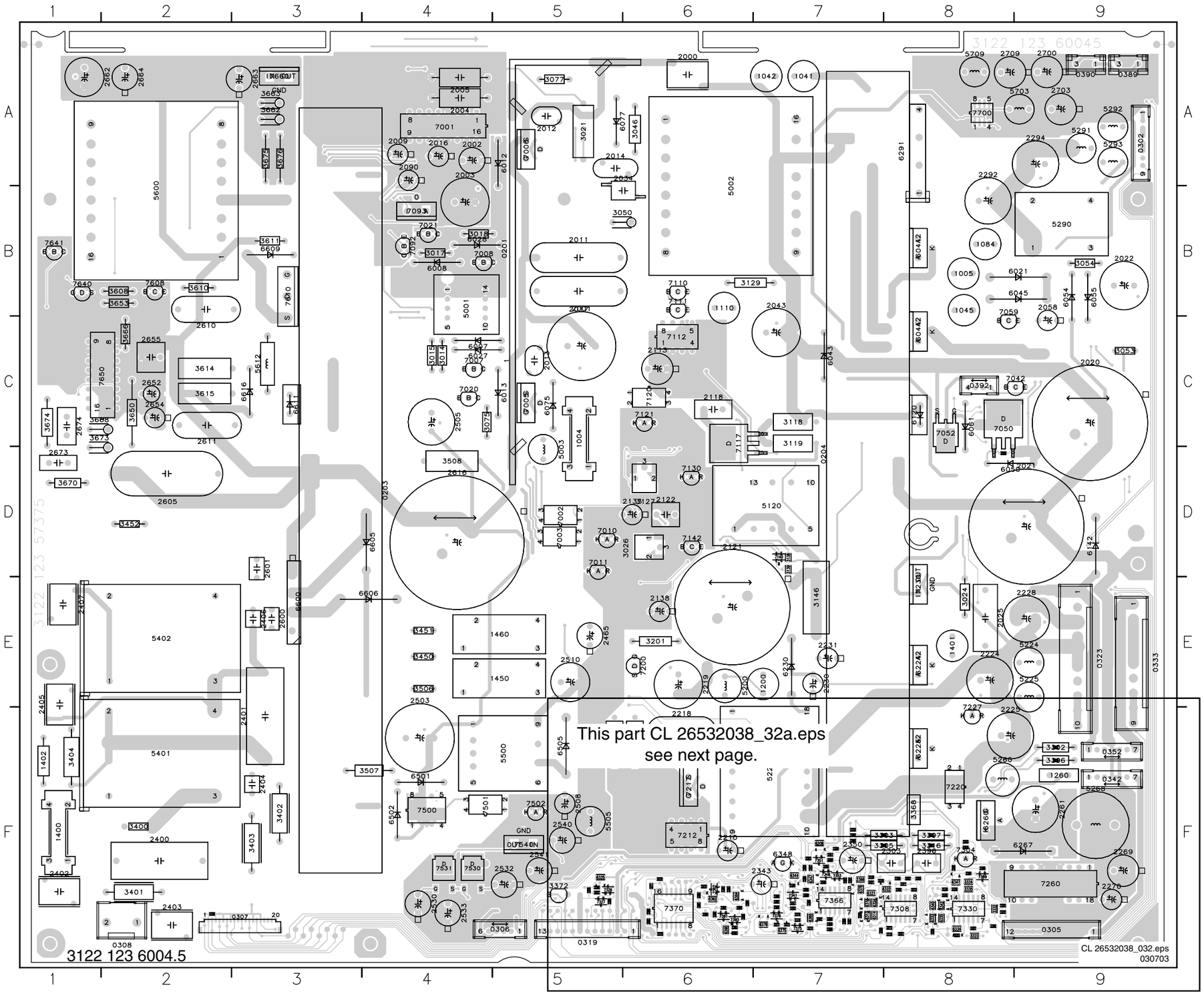
3122 123 6004.5

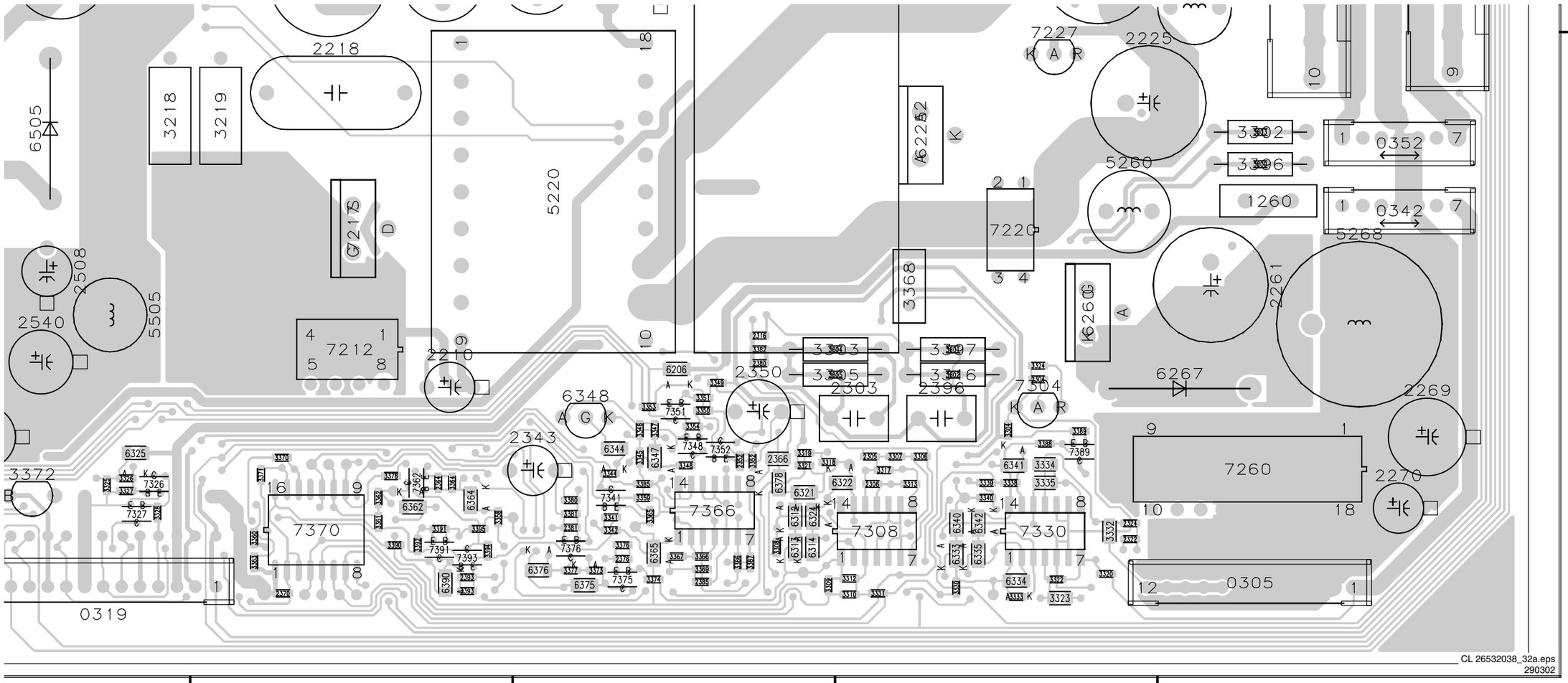
0305 A13	3226 H11	I113 E1
0323 E13	3228 F12	I114 E2
0333 D12	3240 G4	I115 D2
0342 G12	3241 H4	I116 D2
0352 G13	3260 B7	I117 D3
0392 H4	3261 B7	I118 C4
1110 B1	3262 A8	I120 D8
1200 G5	3264 A8	I121 D7
1260 A6	3265 A8	I122 E11
2021 I3	3268 B11	I123 D9
2050 G3	4268 B11	I124 D7
2054 C1	5120 C5	I125 D9
2055 F2	5200 G5	I126 D8
2058 H2	5220 G9	I127 D8
2059 I1	5224 G11	I128 D8
2061 I2	5225 G11	I129 E10
2111 D1	5260 A6	I131 E7
2112 D1	5268 B11	I132 E9
2113 E1	6050 G3	I135 C6
2114 E2	6054 E1	I152 C9
2117 D3	6055 E1	I153 D6
2118 C4	6061 I3	I154 D7
2121 D11	6086 I1	I155 D6
2122 D8	6111 D1	I156 D6
2123 D8	6112 E1	I157 E6
2126 E8	6113 D2	I158 C1
2133 E9	6117 C3	I159 E1
2138 D6	6120 D4	I160 E2
2203 I4	6123 D8	I161 G2
2205 I6	6133 B6	I200 G3
2210 I6	6142 G4	I201 H3
2211 I7	6202 I4	I202 I3
2212 H7	6205 I5	I203 I2
2217 I8	6206 F5	I204 I1
2218 H9	6211 I7	I207 I1
2219 H9	6213 I7	I208 H5
2222 H10	6216 H8	I209 H9
2223 G10	6224 G10	I210 G5
2224 G10	6225 H10	I211 G6
2225 H10	6230 I10	I212 G6
2226 H11	6232 I10	I213 H5
2227 G11	6260 B7	I214 H7
2228 H12	6267 B10	I215 H6
2230 I11	7050 G3	I216 H8
2231 I11	7052 I3	I217 H8
2232 I10	7058 I1	I218 H7
2260 B7	7059 I2	I219 I8
2261 A7	7110 C2	I220 H4
2262 A7	7111 C2	I221 I7
2263 B8	7112 C2	I222 I4
2264 B8	7117 C3	I224 I8
2265 A8	7120 C4	I225 I1
2266 B8	7121 D7	I230 F11
2267 B10	7130 E9	I231 F11
2268 A10	7134 E10	I232 G10
2269 B11	7140-A E5	I233 G10
2270 A9	7140-B D6	I234 G11
3051 G2	7142 D6	I235 G10
3053 H3	7200 G6	I236 H9
3054 B1	7202 H5	I237 H11
3058 G2	7212 H7	I238 H10
3062 H2	7217 H8	I240 I9
3083 H2	7220 F9	I241 I10
3084 I1	7227 H11	I243 I10
3085 I1	7230 I11	I259 A9
3086 I2	7260 A10	I260 A6
3087 I1	F102 C13	I261 A7
3088 I1	F106 F13	I262 A8
3110 C2	F107 G13	I263 A8
3111 C2	F110 A1	I264 B8
3112 D1	F111 C9	I265 B7
3113 D2	F113 G4	I266 B7
3114 D2	F114 I11	I267 A10
3115 D3	F115 A9	I268 B11
3116 D3	F116 I11	I269 B10
3117 D3	F118 E12	I270 B11
3118 D4	F119 E12	
3119 D4	F120 F12	
3120 D7	F121 E13	
3121 D7	F122 C12	
3122 D8	F123 E13	
3123 D8	F124 C12	
3124 D8	F125 E11	
3125 E8	F126 E11	
3126 E7	F127 E11	
3127 E7	F128 E11	
3128 E8	F129 F12	
3129 C1	F130 D12	
3130 D8	F131 D12	
3131 D9	F132 F13	
3132 E8	F133 F12	
3133 C8	F134 F12	
3134 D10	F135 G12	
3135 E10	F136 G12	
3136 E10	F137 H13	
3138 D5	F138 H12	
3139 D6	F139 H13	
3140 E6	F140 G12	
3141 E6	F240 H4	
3142 E6	F241 H4	
3146 C6	F260 A6	
3147 D9	F261 B12	
3200 G5	F262 B12	
3201 G6	F263 B13	
3202 H5	F264 B13	
3203 I4	I101 B2	
3204 I5	I102 C2	
3205 I5	I103 C3	
3212 H6	I104 C2	
3213 I7	I105 C1	
3214 I7	I106 C3	
3216 H8	I107 D4	
3217 I8	I108 D5	
3218 I9	I109 D2	
3219 I9	I110 D3	
3224 G11	I111 D4	
3225 H11	I112 D3	

Layout Power Supply Panel (FM23 AC) (Top Side)

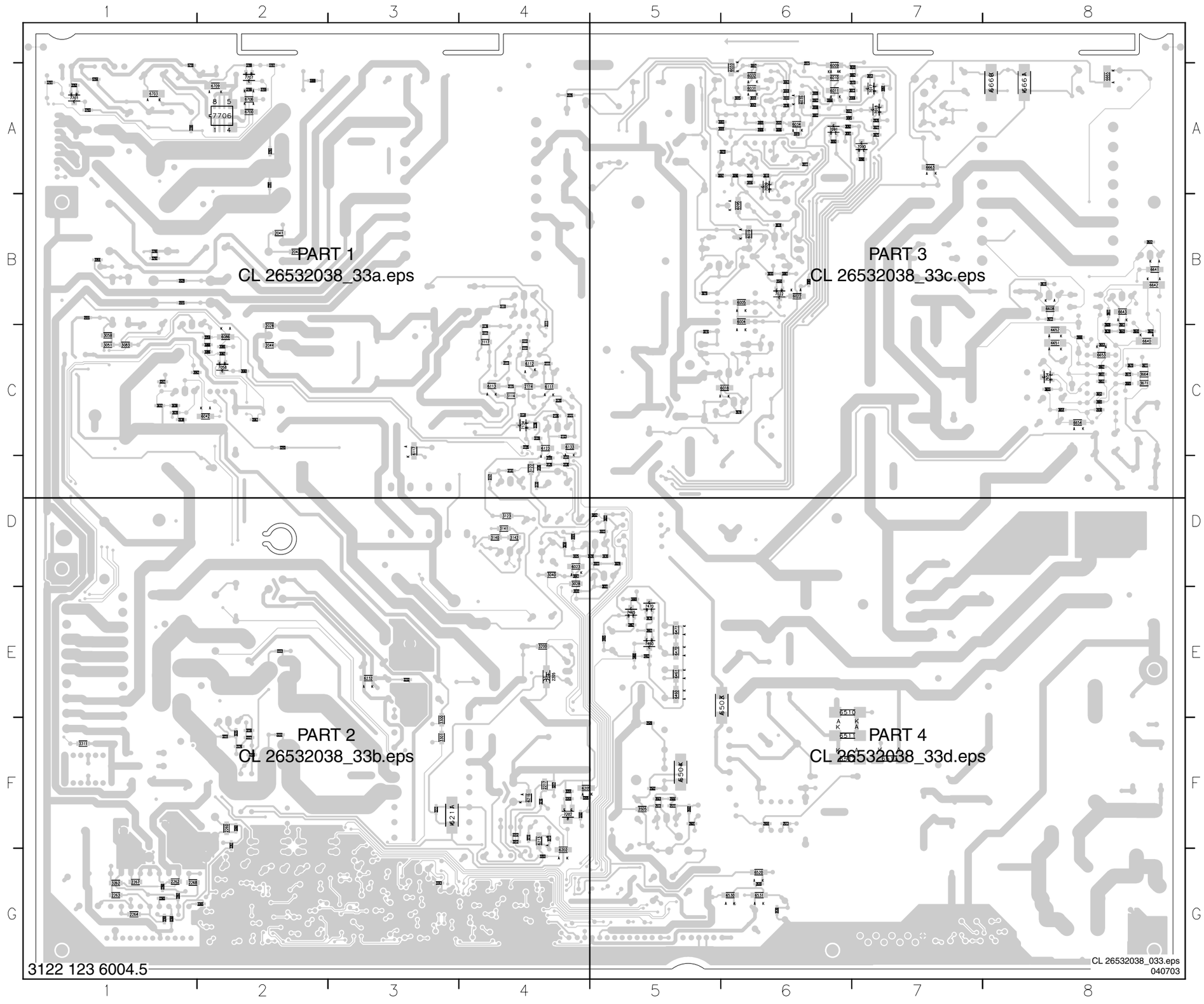


0201	B5	2402	F1	3345	F7	5292	A9	7140	D7
0203	D4	2403	F2	3346	F7	5293	A9	7142	D6
0204	D7	2404	F3	3347	F7	5401	F2	7200	E6
0302	A9	2405	E1	3348	F7	5402	E2	7212	F6
0305	F9	2406	E3	3349	F7	5500	F5	7217	F6
0306	F5	2407	E1	3350	F7	5505	F5	7220	F8
0307	F3	2465	E5	3351	F7	5600	B2	7227	F8
0308	F2	2503	E4	3352	F7	5612	C3	7230	E8
0319	F5	2505	C4	3353	F7	5703	A9	7260	F9
0323	E9	2508	F5	3354	F7	5709	A8	7304	F8
0333	E9	2510	E5	3358	F6	6007	C4	7308	F8
0342	F9	2530	F4	3359	F7	6008	B4	7326	F5
0352	F9	2532	F5	3360	F6	6012	A5	7327	F5
0389	A9	2533	F4	3361	F6	6013	C5	7330	F8
0390	A9	2540	F5	3362	F6	6021	B9	7341	F7
0392	C8	2541	F5	3363	F6	6027	C4	7348	F7
1004	C5	2600	E3	3364	F6	6028	B4	7351	F7
1005	B8	2601	D3	3365	F7	6041	B8	7352	F7
1041	A7	2605	D2	3366	F7	6043	C7	7362	F6
1042	A7	2610	C2	3367	F7	6044	C8	7366	F7
1045	B8	2611	C2	3368	F8	6045	B9	7370	F6
1084	B8	2616	D4	3369	F7	6050	D8	7375	F7
1110	B6	2652	C2	3370	F6	6054	B9	7376	F7
1200	E7	2654	C2	3371	F6	6055	B9	7389	F8
1260	F9	2655	C2	3372	F5	6061	C8	7391	F6
1400	F1	2662	A2	3373	F7	6075	C5	7393	F6
1401	E8	2663	A3	3374	F7	6077	A5	7500	F4
1402	F1	2664	A2	3376	F7	6120	C8	7501	F4
1450	E5	2673	D1	3377	F7	6142	D9	7502	F5
1460	E5	2674	C1	3378	F6	6206	F7	7530	F4
2000	A6	2700	A9	3380	F7	6224	E8	7531	F4
2001	B5	2703	A9	3381	F7	6225	F8	7540	F5
2002	A4	2709	A8	3382	F7	6230	E7	7608	B2
2003	A4	3014	C4	3385	F7	6260	F8	7610	B3
2004	A4	3015	C4	3386	F7	6267	F9	7640	B1
2005	A4	3017	B4	3387	F7	6291	A8	7641	B1
2009	A4	3018	B4	3388	F8	6312	F7	7650	C2
2011	B5	3021	A5	3389	F8	6313	F7	7660	A3
2012	A5	3024	E8	3390	F6	6314	F7	7700	A8
2013	C5	3026	D6	3391	F6	6321	F7		
2014	A5	3046	A6	3392	F6	6322	F8		
2016	A4	3050	B5	3393	F6	6324	F7		
2017	B5	3053	C9	3394	F6	6325	F5		
2020	C9	3054	B9	3395	F6	6333	F8		
2021	D9	3075	C4	3396	F9	6334	F8		
2022	B9	3077	A5	3397	F8	6335	F8		
2025	E8	3118	C7	3400	F2	6340	F8		
2034	A6	3119	C7	3401	F2	6341	F8		
2043	B7	3127	D6	3402	F3	6342	F8		
2050	D8	3129	B6	3403	F3	6344	F7		
2058	B9	3138	D7	3404	F1	6347	F7		
2090	A4	3139	D7	3450	E4	6348	F7		
2113	C6	3146	E7	3451	E4	6362	F6		
2118	C6	3201	E6	3452	D2	6364	F6		
2121	D6	3218	F5	3506	E4	6365	F7		
2122	D6	3219	F6	3507	F4	6375	F7		
2133	D6	3302	F9	3508	D4	6376	F7		
2138	E6	3303	F8	3608	B2	6378	F7		
2210	F6	3304	F8	3610	B2	6390	F6		
2218	F6	3305	F8	3611	B3	6501	F4		
2219	E6	3306	F8	3614	C2	6502	F4		
2224	E8	3307	F8	3615	C2	6505	F4		
2225	F8	3308	F7	3650	C2	6600	E3		
2228	E9	3309	F7	3653	B2	6605	D4		
2230	E7	3310	F8	3662	A3	6606	E4		
2231	E7	3312	F8	3663	A3	6609	B3		
2261	F9	3313	F8	3666	C2	6611	C3		
2269	F9	3316	F8	3668	C1	6616	C3		
2270	F9	3317	F8	3670	D1	7001	A4		
2292	A8	3318	F7	3673	C1	7002	D5		
2294	A9	3319	F7	3674	C1	7003	D5		
2303	F8	3320	F8	3675	A3	7005	C5		
2304	F8	3321	F7	3676	A3	7006	A5		
2305	F8	3322	F8	3800	F9	7007	C4		
2306	F8	3323	F8	3801	F8	7008	B4		
2316	F7	3324	F8	3802	F8	7010	D5		
2322	F8	3325	F5	3803	F9	7011	D5		
2324	F8	3326	F5	3804	F8	7020	C4		
2343	F7	3327	F5	3805	F8	7021	B4		
2350	F7	3328	F5	4300	F2	7042	C9		
2352	F7	3330	F8	5001	B4	7050	C8		
2364	F6	3331	F8	5002	B6	7052	C8		
2366	F7	3332	F8	5003	D5	7059	B8		
2370	F6	3333	F8	5120	D7	7092	B4		
2376	F7	3334	F8	5200	E6	7093	B4		
2380	F7	3335	F8	5220	F7	7110	B6		
2381	F7	3338	F8	5224	E9	7111	B6		
2385	F7	3339	F8	5225	E9	7112	C6		
2393	F6	3340	F8	5260	F8	7117	C6		
2396	F8	3341	F7	5268	F9	7120	C6		
2400	F2	3342	F7	5290	B9	7121	C6		
2401	F3	3344	F7	5291	A9	7130	D6		

Layout Power Supply Panel (FM23 AC) (Part 1 Top Side)

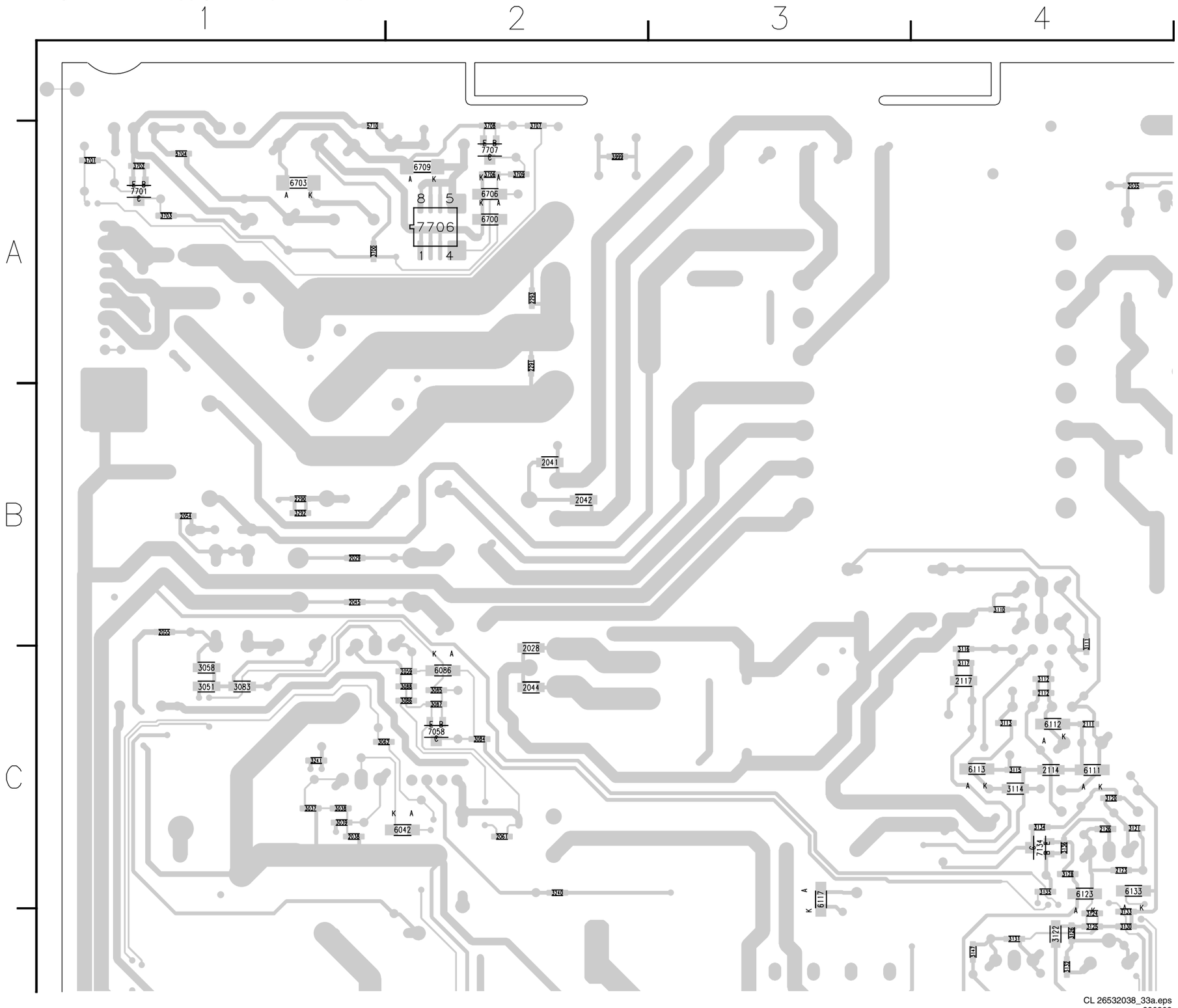


Layout Power Supply Panel (FM23 AC) (Overview Bottom Side)



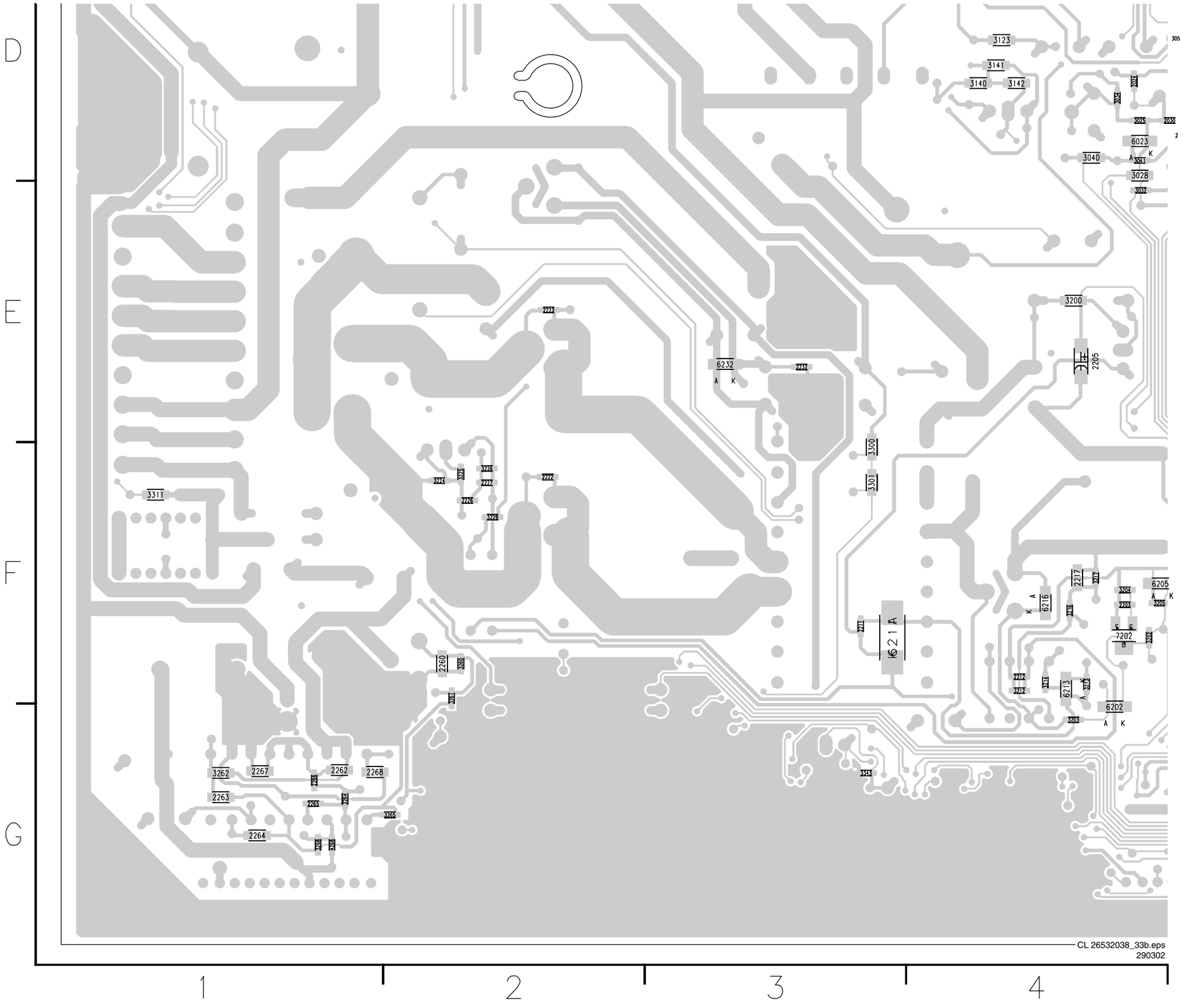
2006	A6	3029	D5	3264	G1	6643	B8
2007	A6	3030	D5	3265	G2	6651	C8
2008	A7	3031	E5	3268	G1	6652	C8
2010	A7	3032	E4	3292	B1	6653	C8
2015	A6	3033	B6	3300	F3	6654	C8
2023	D5	3034	D4	3301	F3	6660	A8
2024	D4	3037	C1	3311	F1	6661	A8
2026	A7	3038	C1	3343	G3	6663	A7
2027	A6	3039	C1	3460	E5	6665	A8
2028	C2	3040	D4	3461	E5	6700	A2
2029	B1	3041	D4	3463	E5	6703	A1
2030	D5	3042	A6	3465	E5	6706	A2
2032	A6	3043	A6	3467	E5	6709	A2
2033	A6	3044	A6	3469	E5	7009	A6
2035	A4	3045	A6	3470	E5	7017	A7
2036	A6	3047	A6	3501	F5	7018	A7
2038	C1	3048	A6	3502	F5	7022	B6
2040	B6	3049	A6	3503	F5	7058	C2
2041	B2	3051	C1	3504	F5	7090	A7
2042	B2	3056	A6	3505	F5	7091	A6
2044	C2	3057	D5	3520	G6	7134	C4
2045	B1	3058	C1	3530	G6	7202	F4
2054	B1	3062	C1	3639	C8	7460	E5
2055	B1	3064	A7	3640	C8	7465	E5
2059	C2	3065	A6	3641	B8	7470	E5
2061	C2	3066	A6	3642	C8	7654	C8
2111	C4	3067	A7	3651	C8	7701	A1
2112	C4	3070	A6	3652	C8	7706	A2
2114	C4	3071	A7	3654	C8	7707	A2
2117	C4	3076	C6	3655	C8		
2123	C4	3078	B6	3664	C8		
2126	C4	3080	B6	3665	C8		
2203	F4	3081	B6	3667	C8		
2205	E4	3083	C1	3671	C8		
2211	F3	3084	C2	3700	A1		
2212	F4	3085	C2	3701	A1		
2217	F4	3086	C2	3702	A1		
2222	F2	3087	C2	3703	A1		
2223	E2	3088	C2	3706	A2		
2226	F2	3090	A7	3707	A2		
2227	F2	3091	A6	3708	A2		
2232	E3	3092	A6	3709	A2		
2260	F2	3093	A6	3999	A2		
2262	G1	3095	A6	4268	G1		
2263	G1	3096	A6	5704	A1		
2264	G1	3097	A6	5710	A1		
2265	G1	3110	B4	6004	B6		
2266	G1	3111	B4	6005	B6		
2267	G1	3112	C4	6009	A6		
2268	G1	3113	C4	6010	A6		
2290	B1	3114	C4	6011	A6		
2291	A2	3115	C4	6018	C6		
2293	A2	3116	C4	6019	B6		
2504	F6	3117	C4	6022	B6		
2507	F5	3120	C4	6023	D4		
2509	F5	3121	C4	6031	A6		
2511	F5	3122	D4	6032	A6		
2512	F5	3123	D4	6033	A6		
2513	F6	3124	D4	6034	A6		
2608	C8	3125	D4	6035	A6		
2612	B8	3126	D4	6042	C2		
2613	B8	3128	C4	6086	C2		
2640	C8	3130	D4	6095	B6		
2641	C8	3131	D4	6111	C4		
2642	B8	3132	D4	6112	C4		
2651	C8	3133	D4	6113	C4		
2653	C8	3134	C4	6117	C3		
2656	C8	3135	C4	6123	C4		
2665	C8	3136	C4	6133	C4		
2666	C8	3140	D4	6202	G4		
2670	C8	3141	D4	6205	F4		
2671	C8	3142	D4	6211	F3		
2672	C8	3147	D4	6213	F4		
3003	A6	3200	E4	6216	F4		
3004	A6	3202	F4	6232	E3		
3005	A6	3203	G4	6460	E5		
3006	A6	3204	F4	6461	E5		
3007	A6	3205	F4	6470	E5		
3008	A6	3212	F4	6471	E5		
3009	A6	3213	F4	6503	E6		
3010	A6	3214	F4	6504	F5		
3011	A6	3216	F4	6510	E6		
3012	A7	3217	F4	6511	F6		
3013	A7	3224	F2	6512	F6		
3016	C5	3225	F2	6513	F7		
3019	B5	3226	F2	6520	G6		
3020	A7	3228	F2	6530	G6		
3022	D5	3240	C2	6531	G6		
3023	D5	3241	C1	6608	B8		
3025	D4	3260	F2	6640	C8		
3027	A7	3261	F2	6641	B8		
3028	D4	3262	G1	6642	B8		

Layout Power Supply Panel (FM23 AC) (Part 1 Bottom Side)

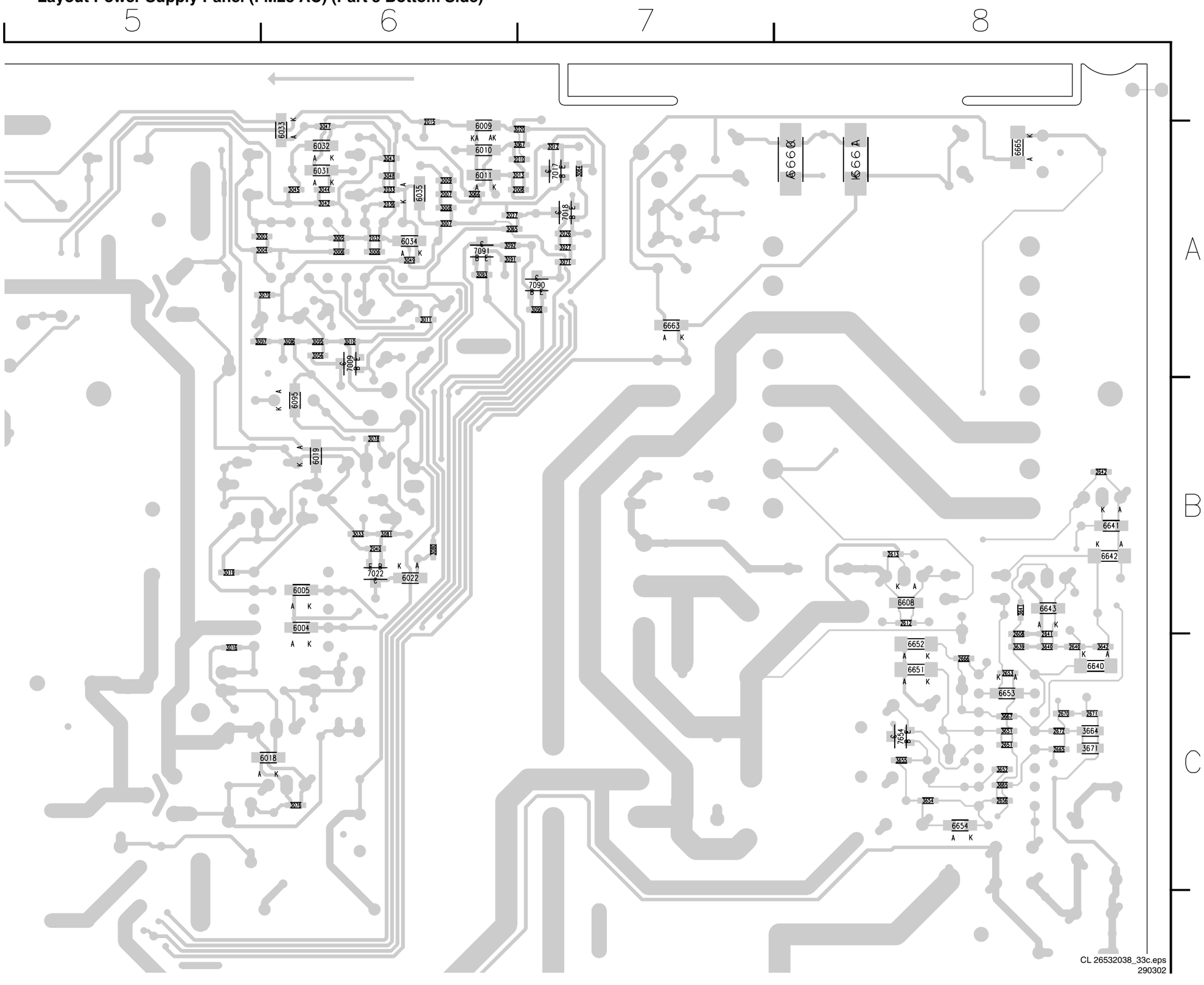


CL 26532038_33a.eps
290302

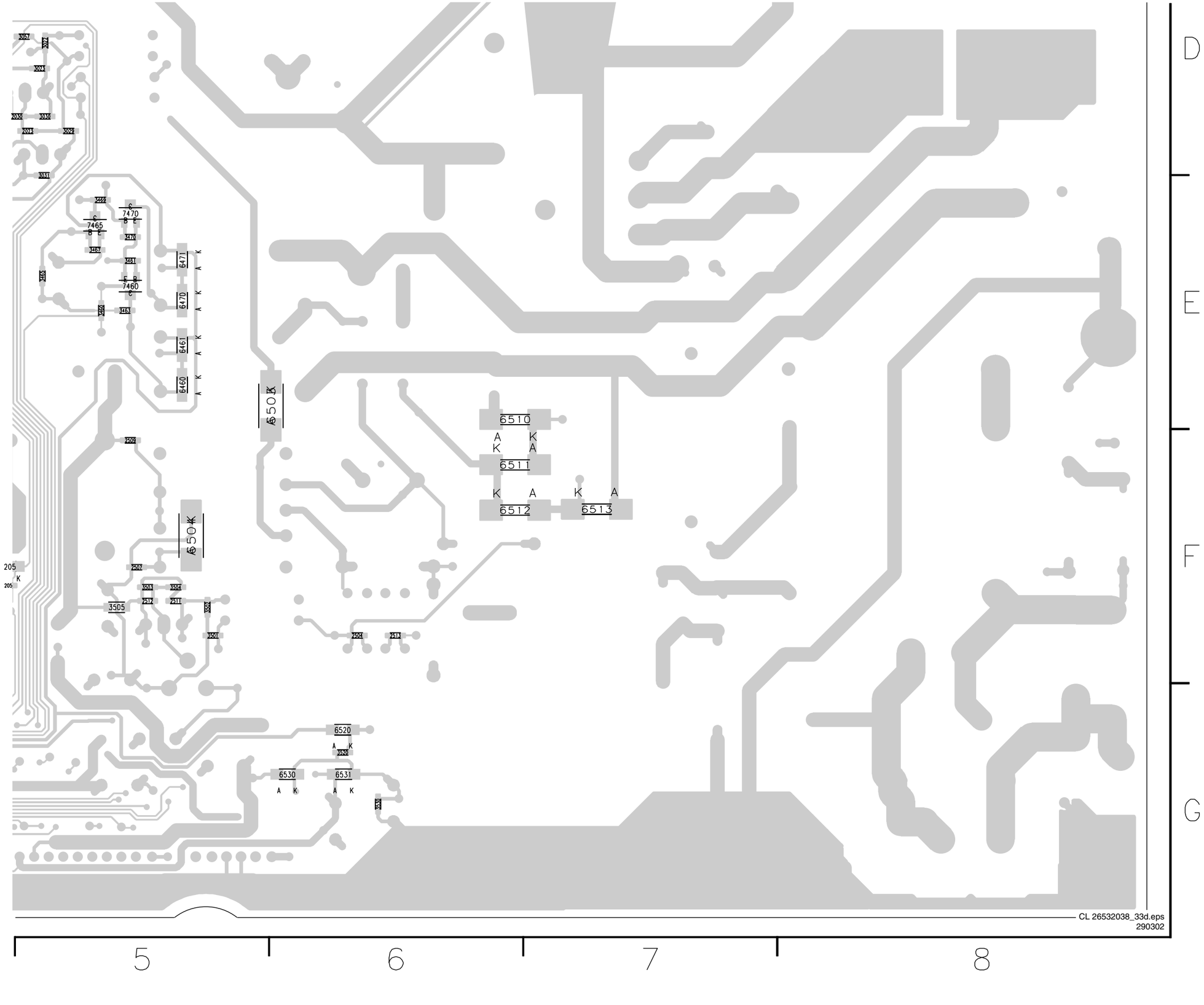
Layout Power Supply Panel (FM23 AC) (Part 2 Bottom Side)



Layout Power Supply Panel (FM23 AC) (Part 3 Bottom Side)

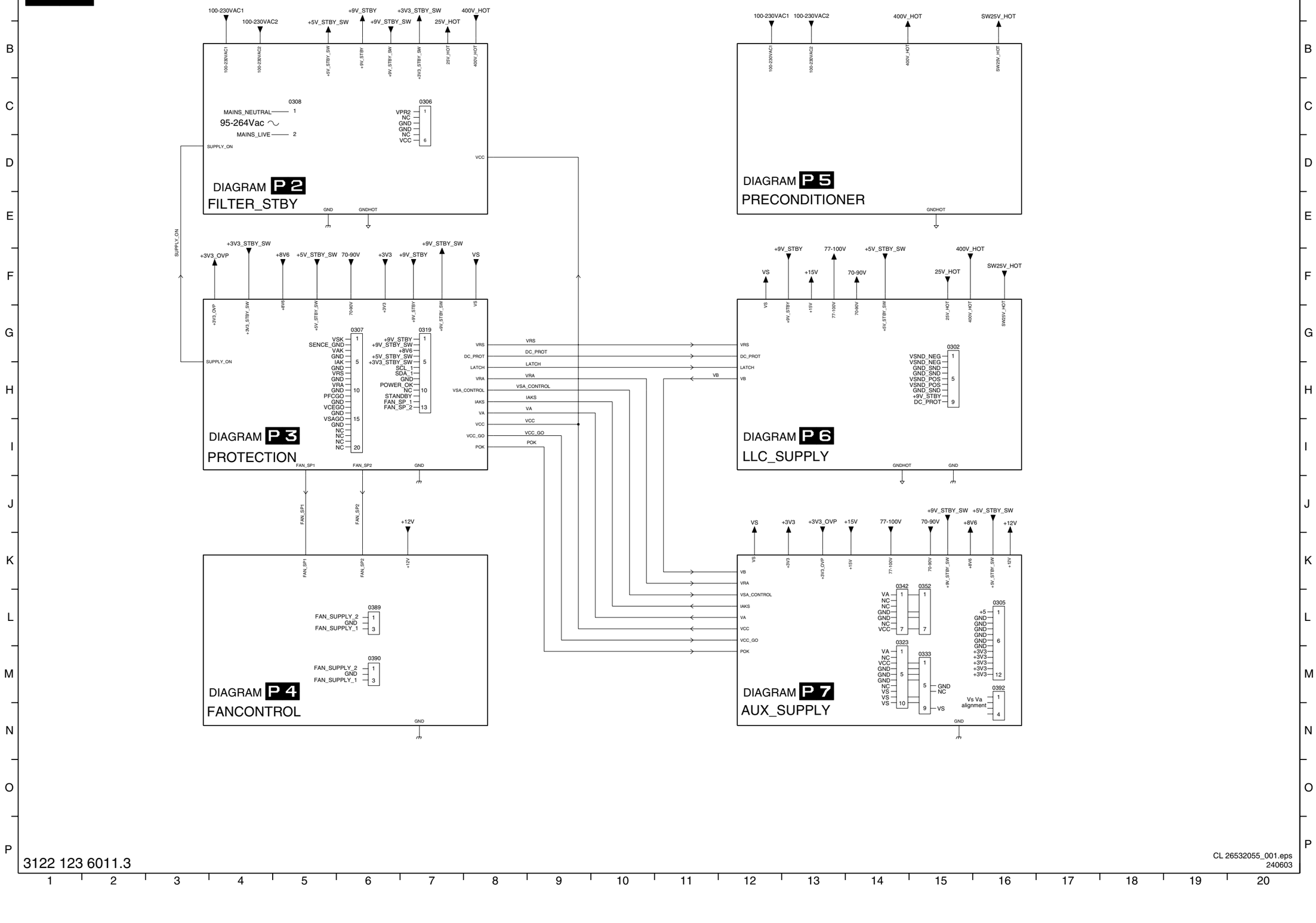


Layout Power Supply Panel (FM23 AC) (Part 4 Bottom Side)



Power Supply Panel (FM24 AB): Function Blocks and Diagram Connections

P 1 SUPPLY (FUNCTION BLOCKS AND DIAGRAM CONNECTIONS)



3122 123 6011.3

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240603

Power Supply Panel (FM24 AB): Filter Standby

P 2 FILTER_STBY

MAINS FILTER

MAINS INPUT 95-264Vac

B2P3-VH

T6.3AH 250V 19181

COLD GROUND

HOT GROUND

TO P 5 PRECONDITIONER

100-230VAC1

100-230VAC2

RELAY CONTROL

SUPPLY_ON

FROM P 3 PROTECTION

FROM P 5 PRECONDITIONER

400V_HOT

STANDBY SUPPLY

TO P 6 LLC_SUPPLY

25V_HOT

CONTROL

+9V_STBY

+9V_STBY_SW

+3V3_STBY_SW

+5V_STBY_SW

SWITCH

TO P 3 PROTECTION P 6 LLC_SUPPLY

TO P 3 PROTECTION

TO P 3 PROTECTION P 6 LLC_SUPPLY P 7 AUX_SUPPLY

TO CN6 PDP (DISPLAY)

FROM P 7 AUX_SUPPLY

I407 = 0V
F411 = 0V
F412 = 4V2
F500 = 380V
F502 = 8V7
F503 = 3V3
I504 = 19V
I508 = 1V3
I513 = 2V2
I514 = 2V5
I516 = 8V1
I517 = 5V

MEASURED DC-VOLTAGES

NORMAL . .

STANDBY (. . .)

F404 100V / div DC 10ms / div

F407 100V / div DC 10ms / div

I406 100 V / div DC 10ms / div

F510 200 V / div DC 10µs / div

0203 HEATSINK

0201 MECHPART

1404 SHIELDING 3.3

1405 SHIELDING 3.3

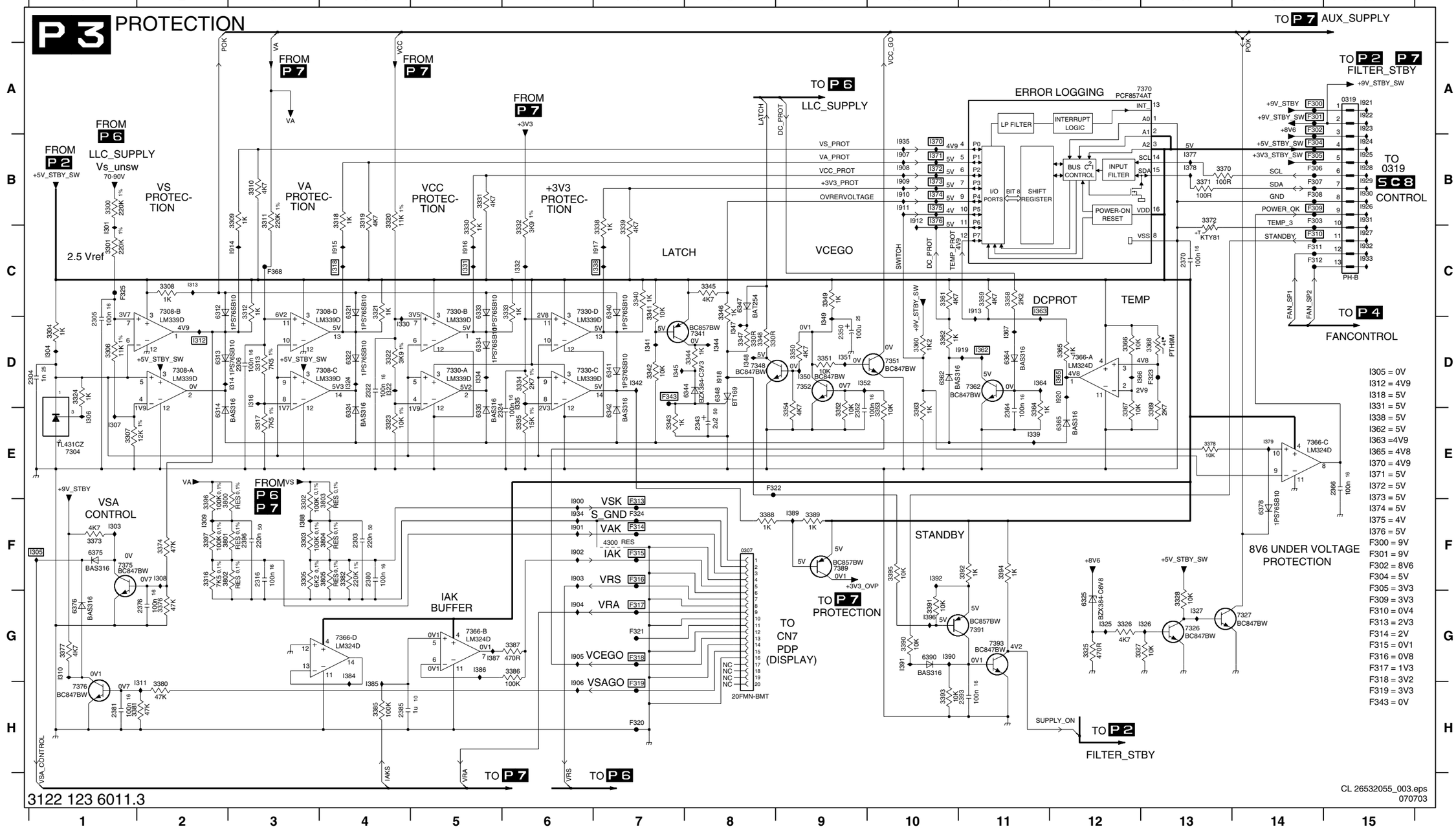
CL 26532055_002.eps 040703

3122 123 6011.3

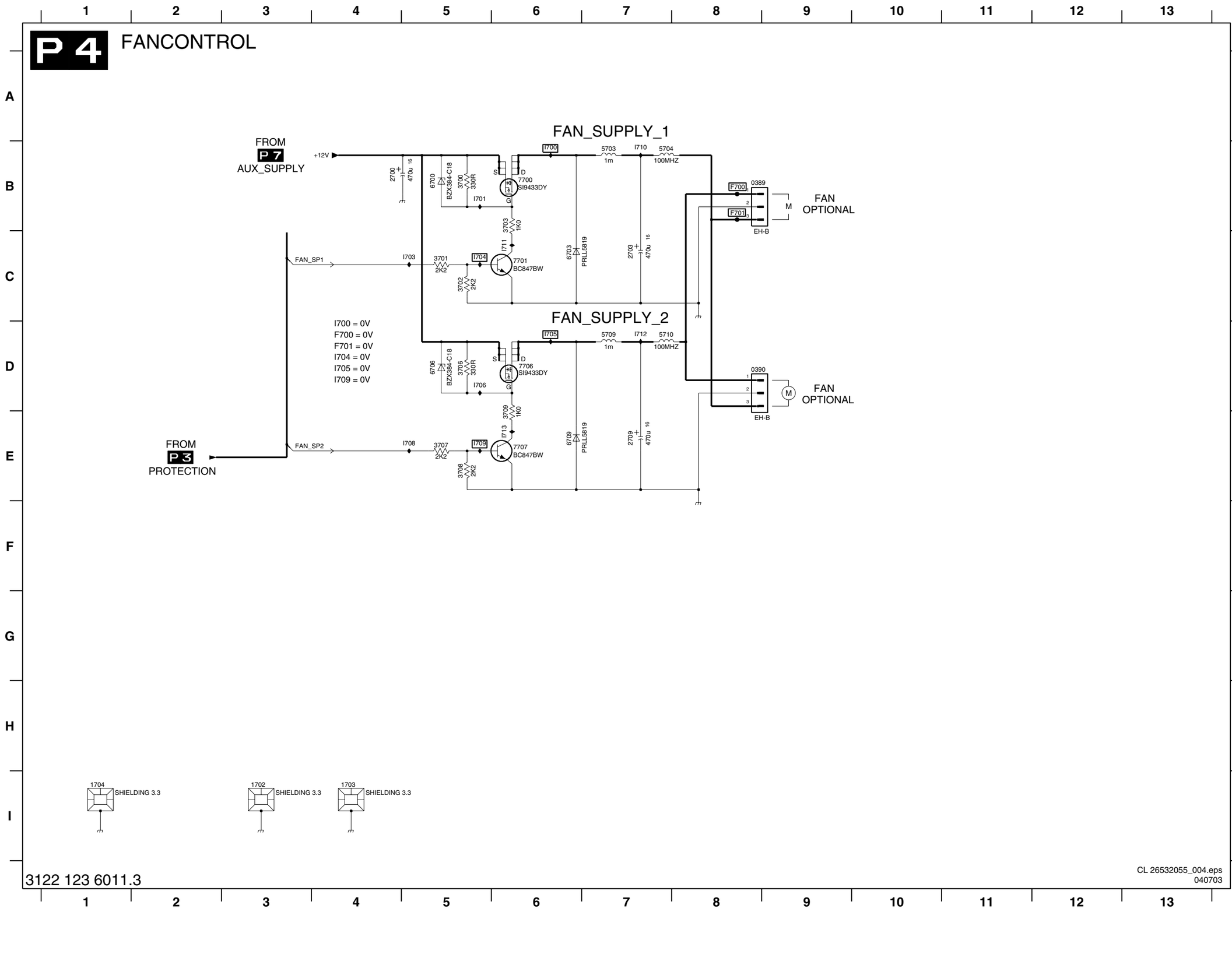
0201 I5	F510 H9
0203 I4	I400 A4
0306 G9	I401 A3
0308 B1	I402 A5
1400 B3	I403 B4
1401 H9	I404 A6
1402 A4	I405 B6
1404 I9	I406 A9
1405 I10	I407 B9
1450 B8	I408 A10
1460 B10	I409 A10
2400 B3	I410 A12
2401 B5	I411 C11
2402 B2	I412 D10
2403 B1	I413 C12
2404 B4	I414 D12
2405 B4	I415 D12
2406 B5	I416 D12
2407 B5	I417 C13
2408 B7	I418 B2
2409 B7	I419 A8
2410 B7	I420 B8
2411 B5	I421 B6
2412 B6	I422 B6
2465 C11	I501 E4
2503 F5	I502 E5
2504 G4	I503 E5
2505 F5	I504 E5
2507 E7	I505 E6
2508 F7	I506 E7
2509 F7	I507 F7
2510 F7	I508 G4
2511 H7	I509 G4
2512 I7	I510 G6
2513 G4	I511 G6
2530 G11	I512 H7
2532 G12	I513 H7
2533 I12	I514 I7
2540 H11	I515 G11
2541 H11	I516 G12
3400 B3	I517 H12
3401 B2	I518 E6
3402 B2	I519 F9
3403 C2	
3404 A4	
3450 A10	
3451 A10	
3452 A11	
3453 A11	
3460 D10	
3461 D10	
3463 D11	
3465 D12	
3467 C12	
3469 D12	
3470 D12	
3501 H7	
3502 H7	
3503 I8	
3504 I8	
3505 H8	
3506 F4	
3507 F4	
3508 E5	
3520 G11	
3530 G12	
5401 B4	
5402 B5	
5403 B7	
5404 B6	
5500 F6	
5505 F9	
6460 D11	
6461 C11	
6470 D13	
6471 C13	
6501 G6	
6502 G6	
6503 E6	
6504 E7	
6505 F7	
6510 E3	
6511 E4	
6512 E5	
6513 E6	
6520 F11	
6530 G12	
6531 I12	
7460 D11	
7465 C12	
7470 D13	
7500 G5	
7501 H6	
7502 I7	
7530 G12	
7531 H12	
7540 H11	
9403 B7	
F400 C1	
F401 B1	
F402 B2	
F403 B2	
F404 B2	
F405 B2	
F406 B1	
F407 B2	
F408 B2	
F409 B3	
F410 B3	
F411 D13	
F412 E12	
F500 F5	
F501 F5	
F502 E8	
F503 F8	
F504 F7	
F505 F7	
F509 G9	

Power Supply Panel (FM24 AB): Protection

0307 F8	2350 D9	2396 F3	3309 B3	3321 C4	3332 C6	3344 D8	3354 E9	3367 E12	3378 E13	3391 G10	3803 F4	6325 G12	6362 D10	7308-C D3	7351 D10	7389 F9	F307 B14	F317 G7	F368 C3	I311 H2	I327 G13	I344 D8	I364 D11	I376 B10	I390 G10	I906 H6	I916 C5	I926 B15
0319 A15	2352 E9	3300 B1	3310 B3	3322 D4	3333 C6	3345 C8	3358 C11	3368 D13	3380 H2	3392 F11	3804 F4	6333 C5	6364 D11	7308-D C3	7352 D9	7391 G11	F308 B14	F318 G7	I301 C1	I312 D2	I330 D4	I345 D7	I365 D12	I377 B13	I391 G10	I907 B10	I917 C7	I927 C15
2303 F4	2364 E11	3301 C1	3311 B3	3323 E4	3334 D6	3346 C8	3359 C11	3369 E13	3381 H1	3393 H10	3805 F4	6334 D5	6365 E12	7326 G13	7362 D11	7393 G11	F309 B14	F319 H7	I303 F1	I313 C2	I331 C5	I347 D8	I366 D12	I378 B13	I392 F10	I908 B10	I918 D8	I928 B15
2304 D1	2366 E15	3302 F3	3312 C3	3324 D1	3335 E6	3347 D8	3360 D10	3370 B13	3382 F4	3394 F11	4300 F7	6335 E5	6375 F1	7327 G14	7366-A D12	F300 A14	F310 C14	F320 H7	I304 D1	I314 D2	I332 C6	I348 D8	I367 D11	I379 E14	I396 G10	I909 B10	I919 D11	I929 B15
2305 D1	2370 C13	3303 F3	3313 D3	3325 G12	3338 C7	3348 D8	3361 D10	3371 B13	3385 H4	3395 F10	6312 C2	6340 C7	6376 G1	7330-A D5	7366-B G5	F301 A14	F311 C14	F321 G7	I305 F1	I316 D3	I334 D5	I349 D8	I370 B10	I384 G4	I900 F6	I910 B10	I920 D12	I930 B15
2306 D3	2376 G2	3304 D1	3316 F2	3326 G12	3339 C7	3349 C9	3362 D10	3372 B13	3386 G6	3396 F2	6313 D2	6341 D7	6378 F14	7330-B C5	7366-C E14	F302 A14	F312 C14	F322 E8	I306 E1	I318 C4	I335 D6	I350 D9	I371 B10	I385 H4	I901 F6	I911 B10	I921 A15	I931 B15
2316 F3	2380 F4	3305 F3	3317 E3	3327 G12	3340 C7	3350 D9	3363 E10	3373 F1	3387 G6	3397 F2	6314 E2	6342 E7	6390 G10	7330-C D6	7366-D G4	F303 B14	F313 F7	F323 D13	I307 E1	I322 D4	I338 C7	I351 D9	I372 B10	I386 G5	I902 F6	I912 B10	I922 A15	I932 C15
2322 D4	2381 H1	3306 D1	3318 B4	3328 G13	3341 C7	3351 D9	3364 E11	3374 F2	3388 F8	3800 F2	6321 C4	6344 D8	7304 E1	7330-D C6	7370 A13	F304 B14	F314 F7	F324 F7	I308 F2	I324 D4	I339 E11	I352 D9	I373 B10	I387 G5	I903 F6	I913 C11	I923 A15	I933 C15
2324 E6	2385 H4	3307 E1	3319 B4	3330 C5	3342 D7	3352 E9	3365 D12	3376 G2	3389 F9	3801 F2	6322 D4	6347 C8	7308-A D2	7341 D8	7375 F1	F305 B14	F315 F7	F325 C1	I309 F2	I325 G12	I341 D7	I362 D11	I374 B10	I388 F3	I904 G6	I914 C3	I924 B15	I934 F6
2343 E8	2393 H11	3308 C2	3320 B4	3331 B5	3343 E7	3353 E10	3366 D12	3377 G1	3390 G10	3802 F2	6324 E4	6348 D8	7308-B C2	7348 D8	7376 H1	F306 B14	F316 F7	F343 D7	I310 G1	I326 G13	I342 D7	I363 C11	I375 B10	I389 F9	I905 G6	I915 C4	I925 B15	I935 B10



Power Supply Panel (FM24 AB): Fan Control



0389 B8
0390 D8
1702 I3
1703 I4
1704 I1
2700 B4
2703 C7
2709 E7
3700 B5
3701 C5
3702 C5
3703 B6
3706 D5
3707 E5
3708 E5
3709 E6
5703 B7
5704 B7
5709 D7
5710 D7
6700 B5
6703 C6
6706 D5
6709 E6
7700 B6
7701 C6
7706 D6
7707 E6
F700 B8
F701 B8
I700 B6
I701 B5
I703 C5
I704 C5
I705 D6
I706 D5
I708 E5
I709 E5
I710 B7
I711 C6
I712 D7
I713 E6

3122 123 6011.3

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Power Supply Panel (FM24 AB): Pre-Conditioner

P5 PRECONDITIONER

PRECONDITIONER

MEASURED DC-VOLTAGES
NORMAL . .
STANDBY (. . .)

100-230VAC2
100-230VAC1
FROM P2 FILTER_STBY

6606 1N5406
6605 1N5406
6600 GBU8
2600 1n 1000
2601 1n 1000
2605 1u 400

F601 F603 I603 I604 F600 400V 400V_HOT
TO P2 FILTER_STBY AND P6 LLC_SUPPLY

5600 CE423D
2611 220p 2000
6611 BYV29X-500

I605 6608 I634 BAS316
2612 1n 50
1V5 (0V) I606
3610 3R3 SFR16
I607
7610 STY34NB50
5612 100MHz
I608
2610 1n8 2000
I630
I609
1V4 (0V)
BC369 7608
2613 1n 50
3608 1K SFR16
0V (0V)
I635
6609 BZT03-C18
3611 1K
0V01 (0V)
MTL 2W 3614 0R1
MTL 2W 3615 0R1
MTL 2W 6615 RES
2616 220u 400
2617 220u 400
F604 F605

F608
SW25V_HOT
TO P6 LLC_SUPPLY

F601
100V / div DC
5ms / div

I607
5 V / div DC
5µs / div

F608
5V / div DC
5µs / div

F608
200 V / div DC
5µs / div

F610
5V / div DC
5µs / div

F600 = 380V
F604 = 0V
F609 = 14V7
I609 = 0V
I619 = 0V
I621 = 5V
I622 = 399V
I629 = 5V

3662 RES NFR25
3663 1R NFR25
I610 I631 I632 I611
2663 100u 50V
I612 6661 RS1G
I613
6660 RS1G
2664 100u 50V
6663 BAS316
3676 470R PR01
31V (5V7)
7660 L7815
14V9 (4V8)
3675 220R PR01
I637
I614 6665 PRLL5819
BIAS
2662 1m 25

F613
10 V / div DC
5ms / div

I620
5 V / div DC
5µs / div

F625
5 V / div DC
5µs / div

PRECONDITIONER CONTROL

3650 1M3 MRS25 1%
3653 820R
3688 1K NFR25H
F609
3642 100R
6640 PRLL5819
F610
3641 470R
I625
14V7 (4V8)
7641 BC337-25
1V2 (0V)
2642 1n 25
6641 BAS316
I626
6642 PRLL5819
I629
3673 1K NFR25H
I627
2674 22n 400
3674 1M VR25
2673 4n7 400
3670 150K MRS25 1%
I628
2640 470p 50
I624
7640 BSN304
0V2 (0V)
1V5 D (0V)
3640 330R
2641 RES 25
6643 BZX384-C18
F606
2671 100n 16
I636
2670 100n 16
3664 270K 1%
3671 10K 1%

7650 MC33368
I622
5V (0V) 1 VREF
6V9 (0V4) 2 RD
5V (0V1) 3 VFB
2V3 (0V) 4 COMP
1V (0V01) 5 MULT
0V1 (0V04) 6 CS
3V7 (0V) 7 ZC
8 AGND
16 LINE
15 NC1
14 NC2
13 FC (0V) 1V7
12 VCC (4V6) 14V7
11 GATE (0V) 2V7
10 PGND
9 LEB
CONTROL

I621
6654 BAS316
3654 10K
I617
2V3 (0V)
3655 1K
I633
BC857BW 7654
I615
2654 470u 25
2656 100n 25
I616
2652 RES 16
3652 1M
2655 1u 50
3651 10K
2651 10n 50
6651 RES
I618
I619
3666 10R 2666
4n7 50
6652
PRLL5819
2653 330p 50
6653 BZM55-C8V2
I620
3667 10K
3665 10K
2672 100n 25
2608 1n 25
2665 470p 50
3639 1K

HOT GROUND
HOT BORDER

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3122 123 6011.3

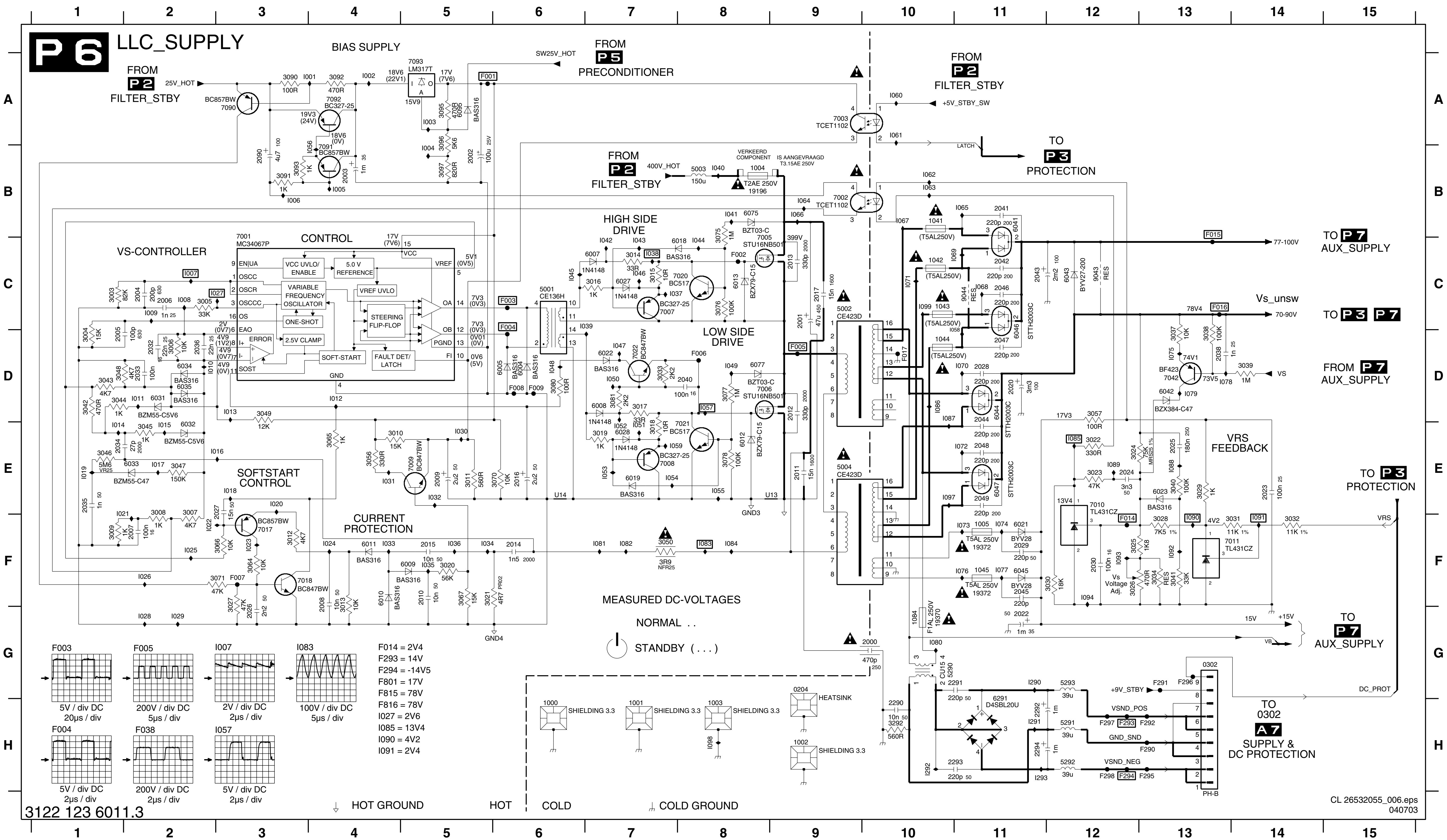
2600 B3 I622 G7
2601 B2 I623 G8
2605 C3 I624 H9
2608 H8 I625 G10
2610 C7 I626 H11
2611 B8 I627 G12
2612 C6 I628 G12
2613 C6 I629 H12
2616 C9 I630 C8
2617 C9 I631 E6
2640 H9 I632 E7
2641 H9 I633 H2
2642 G11 I634 B6
2651 H4 I635 C7
2652 H3 I636 H12
2653 H5 I637 E9
2654 H1
2655 H3
2656 H2
2662 E10
2663 E8
2664 E8
2665 H8
2666 H4
2670 I12
2671 H12
2672 H7
2673 G12
2674 G12
3608 C5
3610 C6
3611 C7
3614 C7
3615 C8
3639 H8
3640 H9
3641 G9
3642 G10
3650 G3
3651 H3
3652 H3
3653 G5
3654 H1
3655 H1
3662 E7
3663 E7
3664 H12
3665 G8
3666 H4
3667 H6
3668 F7
3670 G12
3671 H12
3673 G12
3674 H12
3675 E9
3676 E9
3999 A11
5600 B5
5612 B7
6600 B2
6605 A3
6606 A2
6608 B6
6609 C7
6611 B8
6616 C8
6640 G10
6641 H10
6642 H11
6643 H9
6651 H4
6652 H5
6653 H5
6654 H1
6660 E8
6661 E8
6663 E9
6665 E10
7608 C6
7610 C7
7640 H10
7641 G10
7650 G6
7654 H2
7660 E9
F600 B10
F601 B3
F604 D10
F605 D10
F606 I10
F608 D11
F609 F9
F610 G9
F996 A10
F997 A10
F998 A11
F999 A11
I603 B5
I604 B7
I605 B5
I606 C6
I607 C7
I608 B7
I609 C8
I610 E6
I611 E7
I612 E8
I613 E8
I614 E9
I615 H1
I616 H3
I617 G2
I618 H4
I619 H4
I620 H5
I621 G4

Power Supply Panel (FM24 AB): LLC Supply

U13 E9	1005 F11	2002 B5	2011 E9	2023 E14	2033 D2	2044 D11	2292 H11	3009 F1	3018 E7	3027 F3	3038 D13
U14 E6	1041 B10	2003 B4	2012 D9	2024 E12	2034 E1	2045 F11	2293 H11	3010 E4	3019 E7	3028 F13	3039 D14
0204 G9	1042 C10	2004 C2	2013 C9	2025 E13	2035 E1	2046 C11	2294 H11	3011 E5	3020 F5	3029 E13	3040 E13
0302 G13	1043 C10	2005 D1	2014 F6	2026 G3	2036 D2	2047 D11	3003 C1	3012 F3	3021 F5	3030 F12	3041 F13
1000 H6	1044 D10	2006 C2	2015 F5	2027 E3	2038 D13	2048 E11	3004 D1	3013 F4	3022 E12	3031 F14	3042 D1
1001 H7	1045 F11	2007 F2	2016 E6	2028 D11	2040 D8	2049 E11	3005 C2	3014 C7	3023 E12	3032 F14	3043 D1
1002 H9	1084 G10	2008 F4	2017 C9	2029 F11	2041 B11	2090 B3	3006 D2	3015 C7	3024 E12	3033 D7	3044 D1
1003 H8	2000 G10	2009 E5	2020 D11	2030 F12	2042 C11	2290 H10	3007 F2	3016 C7	3025 F12	3034 F13	3045 E2
1004 B8	2001 C9	2010 F5	2022 G11	2032 D2	2043 C11	2291 G11	3008 F2	3017 D7	3026 F12	3037 D13	3046 E1

3047 E2	3067 F5	3090 A3	5002 C9	6007 C7	6021 F11	6035 D2	6077 D8	7008 E7	7042 D13	F003 C6	F016 C13
3048 D1	3070 E6	3091 B3	5003 B8	6008 D7	6022 D7	6041 B11	6095 A5	7009 E5	7090 A3	F004 C6	F017 D10
3049 D3	3071 F3	3092 A4	5004 E9	6009 F5	6023 E13	6042 D13	6291 H11	7010 E12	7091 B4	F005 D9	F290 H13
3050 F7	3075 B8	3093 B3	5290 G10	6010 F4	6027 C7	6043 C12	7001 C3	7011 F13	7092 A4	F006 D8	F291 G13
3056 E4	3076 C8	3095 A5	5291 H12	6011 F4	6028 E7	6044 D11	7002 B9	7017 F3	7093 A5	F007 F3	F292 H13
3057 D12	3077 D8	3096 A5	5292 H12	6012 E8	6031 D2	6045 F11	7003 A9	7018 F3	9043 C12	F008 D6	F293 H12
3064 F3	3078 E8	3097 B5	5293 G12	6013 C8	6032 E2	6046 D11	7005 C8	7020 C8	9044 C11	F009 D6	F294 H12
3065 E4	3080 D6	3292 H10	6004 D6	6018 C8	6033 E2	6047 E11	7006 D8	7021 E8	F001 A5	F014 F12	F295 H13
3066 F3	3081 D7	5001 C6	6005 D6	6019 E7	6034 D2	6075 B8	7007 C7	7022 D7	F002 C8	F015 B13	F296 G13

F297 H12	I008 C2	I017 E2	I026 F2	I035 F5	I044 C8	I053 E7	I062 B10	I071 C10	I080 G10	I089 E12	I290 G11
F298 H12	I009 C2	I018 E3	I027 C3	I036 F5	I045 C6	I054 E7	I063 B10	I072 E11	I081 F7	I090 F13	I291 H11
I001 A4	I010 D2	I019 E1	I028 G2	I037 C7	I046 C7	I055 E8	I064 B9	I073 F11	I082 F7	I091 F14	I292 H10
I002 A4	I011 D2	I020 E3	I029 G2	I038 C7	I047 D7	I056 B4	I065 B11	I074 F11	I083 F8	I092 F13	I293 H11
I003 A5	I012 D4	I021 E1	I030 E5	I039 C7	I048 D6	I057 D8	I066 B9	I075 D13	I084 F8	I093 F12	
I004 B5	I013 D3	I022 F2	I031 E4	I040 B8	I049 D8	I058 C11	I067 B10	I076 F11	I085 E12	I094 F12	
I005 B4	I014 E1	I023 F3	I032 E5	I041 B8	I050 D7	I059 E7	I068 C11	I077 F11	I086 D10	I097 E10	
I006 B3	I015 E2	I024 F4	I033 F4	I042 C7	I051 E7	I060 A10	I069 C10	I078 D13	I087 D10	I098 H8	
I007 C2	I016 E3	I025 F2	I034 F5	I043 C7	I052 E7	I061 A10	I070 D11	I079 D13	I088 E13	I099 C10	



Power Supply Panel (FM24 AB): Aux Supply

P 7 AUX_SUPPLY

+3V3-SUPPLY

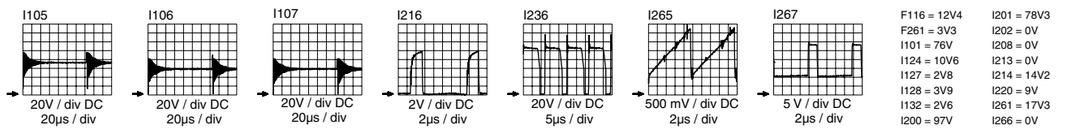
VA-SUPPLY

VCC-SUPPLY

SEQUENCE DISCHARGE

MEASURED DC-VOLTAGES
NORMAL . .
STANDBY . .

FROM P6 LLC_SUPPLY
FROM P3 PROTECTION
FROM P2 FILTER_STBY
TO P3 PROTECTION
TO P2 P3 FILTER_STBY
TO 0305 5C8 CONTROL-FUNCTIONS
TO P3
TO P6 P3
TO P2 P3
TO CN33 PDP (DISPLAY)
TO CN23 PDP (DISPLAY)
TO CN42 PDP (DISPLAY)
TO CN52 PDP (DISPLAY)
TO P4 FANCONTROL
TO P3 PROTECTION



F116 = 12V4
F261 = 3V3
I101 = 76V
I124 = 10V6
I127 = 2V8
I128 = 3V9
I132 = 2V6
I200 = 97V
I201 = 78V3
I202 = 0V
I208 = 0V
I213 = 0V
I214 = 14V2
I220 = 9V
I261 = 17V3
I266 = 0V

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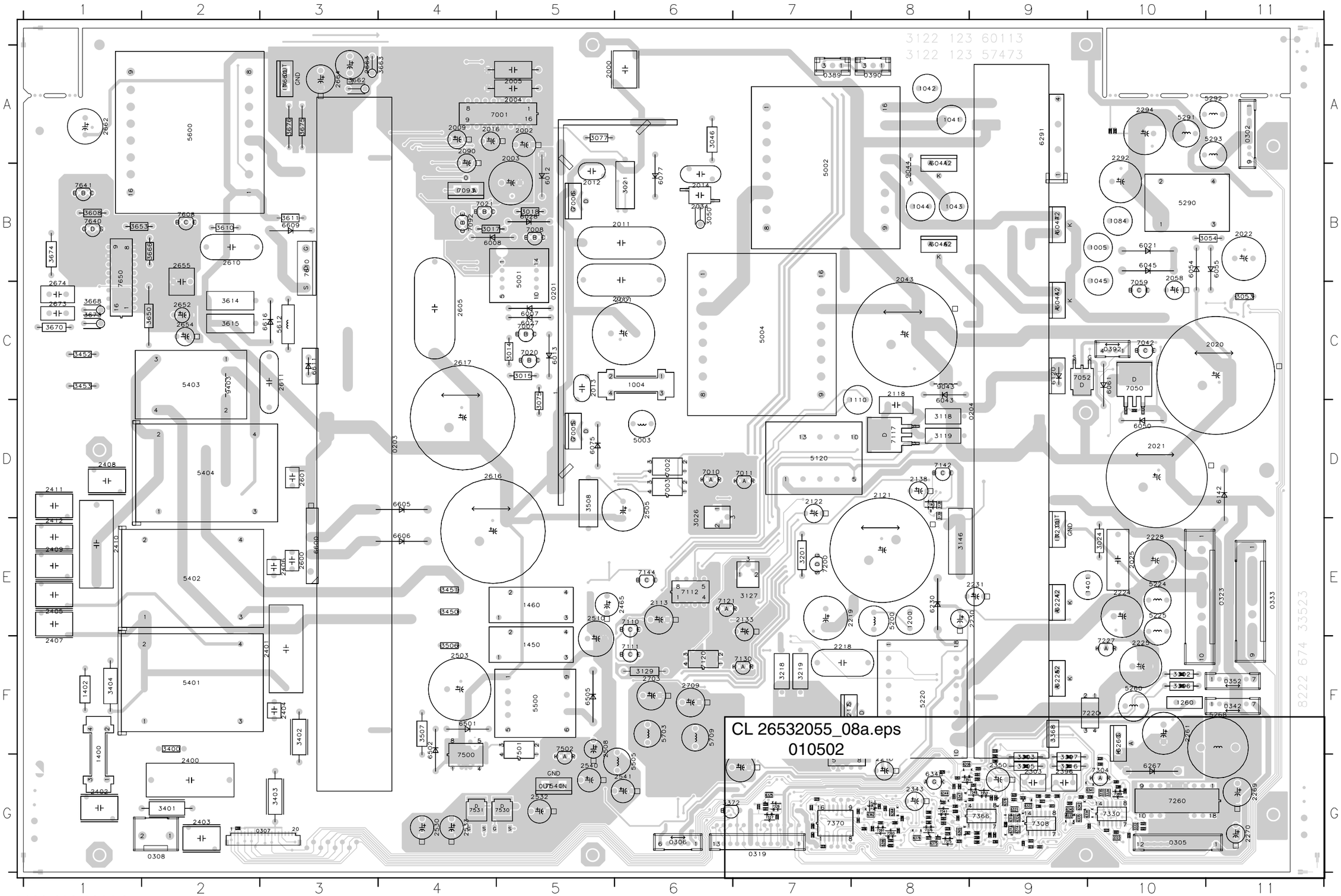
3122 123 6011.3

Layout Power Supply Panel (FM24 AB) (Top Side)



3122 123 6011.3

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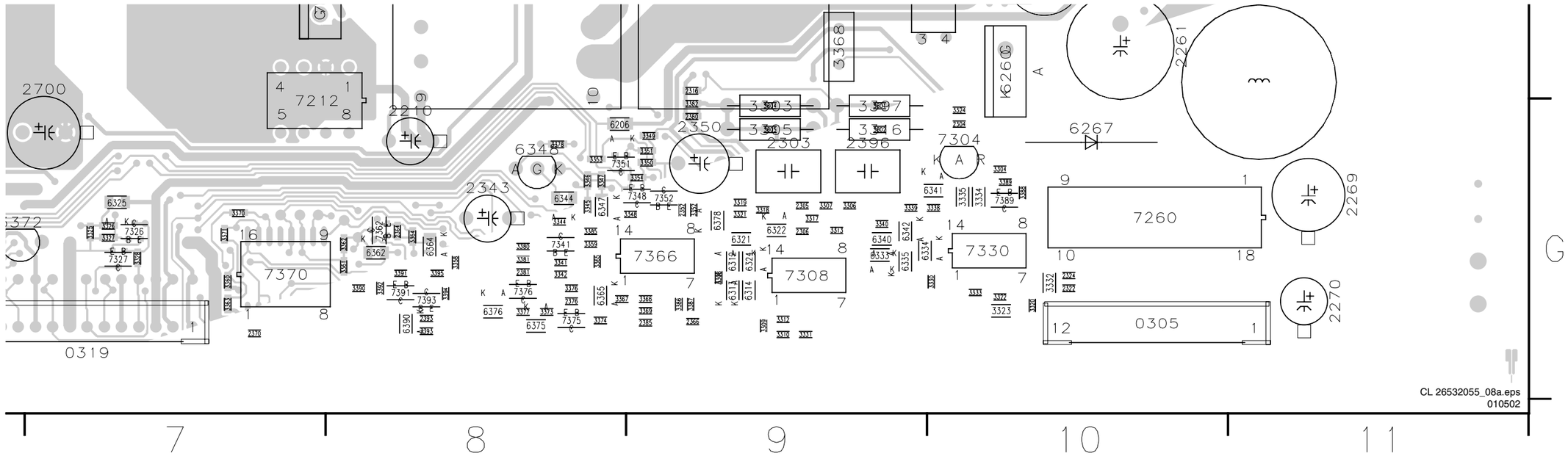
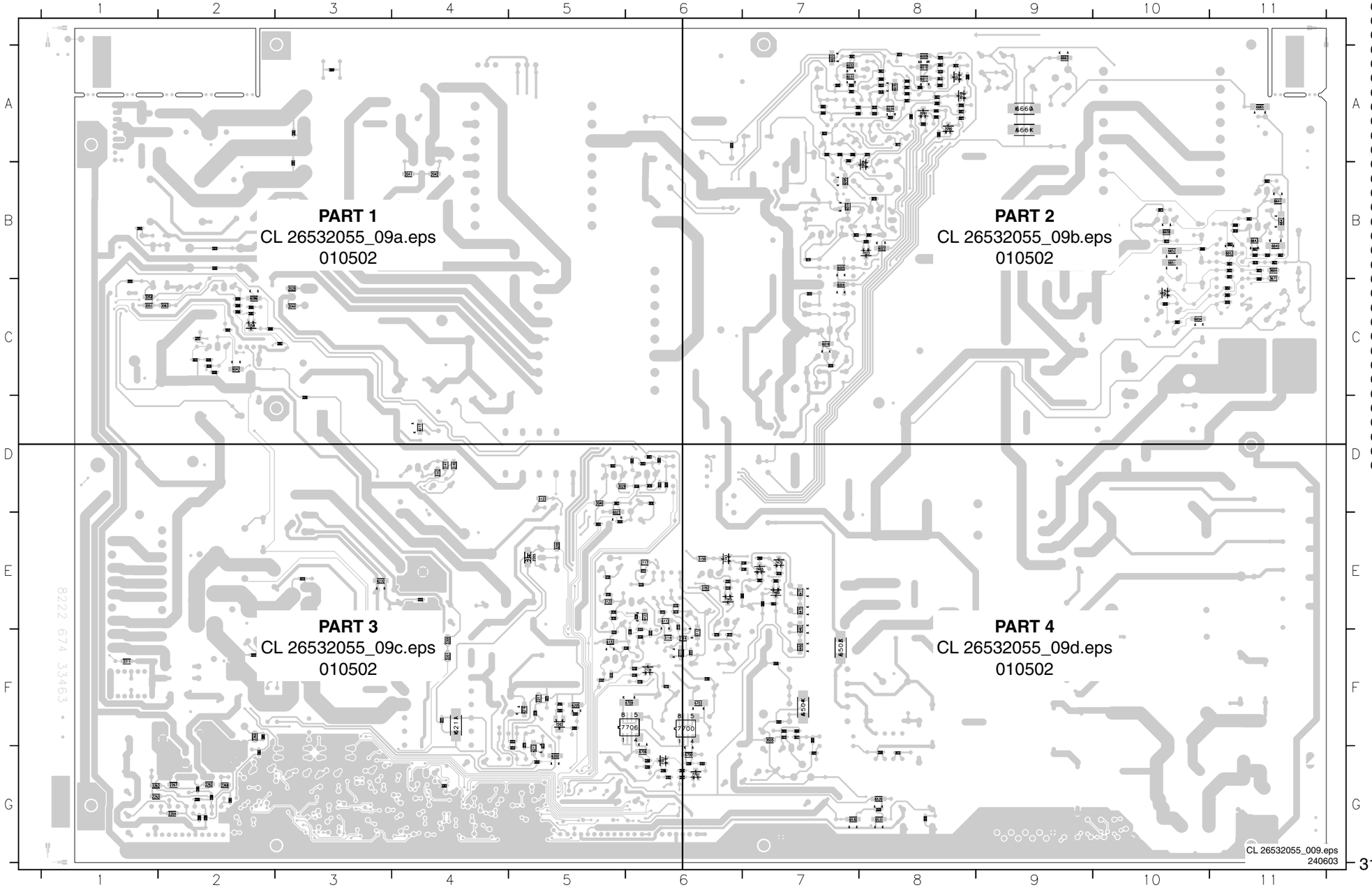
Layout Power Supply Panel (FM24 AB) (Part 1 Top Side)

0201	C5	2001	C6	2230	E9	2406	E3	2703	F6	3309	G9	3349	G9	3389	G10	3673	C1	5612	C3	6314	G9	7005	D5	7326	G7
0203	D4	2002	A5	2231	E9	2407	F1	2709	F6	3310	G9	3350	G9	3390	G8	3674	B1	5703	F6	6321	G9	7006	B5	7327	G7
0204	D9	2003	A5	2261	F10	2408	D1	3014	C5	3312	G9	3351	G9	3391	G8	3675	A3	5709	F6	6322	G9	7007	C5	7330	G10
0302	A11	2004	A5	2269	G11	2409	E1	3015	C5	3313	G9	3352	G9	3392	G8	3676	A3	6007	C5	6324	G9	7008	B5	7341	G8
0305	G10	2005	A5	2270	G11	2410	E1	3017	B4	3316	G9	3353	G8	3393	G8	3800	F10	6008	B4	6325	G7	7010	D6	7348	G9
0306	G6	2009	A4	2290	A10	2411	D1	3018	B5	3317	G9	3354	G9	3394	G8	3801	G9	6012	B5	6333	G9	7011	D7	7351	G8
0307	G3	2011	B6	2292	A10	2412	E1	3021	B6	3318	G9	3358	G8	3395	G8	3802	G9	6013	C5	6334	G9	7020	C5	7352	G9
0308	G2	2012	B5	2294	A10	2465	E6	3024	E10	3319	G9	3359	G8	3396	F10	3803	F10	6021	B10	6335	G9	7021	B4	7362	G8
0319	G7	2013	C5	2303	G9	2503	F4	3026	E6	3320	G10	3360	G7	3397	G9	3804	G9	6027	C5	6340	G9	7042	C10	7366	G9
0323	E11	2014	B6	2304	G10	2505	D6	3046	A6	3321	G9	3361	G8	3400	F2	3805	G9	6028	B5	6341	G10	7050	C10	7370	G7
0333	E11	2016	A4	2305	G9	2508	F5	3050	B6	3322	G10	3362	G8	3401	G2	4300	G2	6041	B8	6342	G9	7052	C9	7375	G8
0342	F11	2017	C6	2306	G9	2510	E5	3053	C11	3323	G10	3363	G7	3402	F3	5001	B5	6043	D8	6344	G8	7059	C10	7376	G8
0352	F11	2020	C11	2316	F9	2530	G4	3054	B11	3324	G10	3364	G8	3403	G3	5002	B7	6044	C9	6347	G8	7092	B4	7389	G10
0389	A7	2021	D10	2322	G10	2532	G5	3075	D5	3325	G7	3365	G8	3404	F1	5003	D6	6045	B10	6348	G8	7093	B4	7391	G8
0390	A8	2022	B11	2324	G10	2533	G4	3077	A5	3326	G7	3366	G9	3450	E4	5004	C7	6046	B8	6362	G8	7110	E6	7393	G8
0392	C10	2025	E10	2343	G8	2540	G5	3118	D8	3327	G7	3367	G8	3451	E4	5120	D7	6047	B9	6364	G8	7111	F6	7500	G4
1004	C6	2034	B6	2350	G9	2541	G6	3119	D8	3328	G7	3368	F9	3452	C1	5200	E8	6050	D10	6365	G8	7112	E6	7501	F5
1005	B10	2043	B8	2352	G9	2600	E3	3127	E7	3330	G10	3369	G9	3453	C1	5220	F8	6054	B10	6375	G8	7117	D8	7502	F5
1041	A8	2050	D10	2364	G8	2601	D3	3129	F6	3331	G9	3370	G7	3506	F4	5224	E10	6055	B11	6376	G8	7120	F6	7530	G5
1042	A8	2058	B10	2366	G9	2605	C4	3138	D8	3332	G10	3371	G7	3507	F4	5225	E10	6061	C10	6378	G9	7121	E6	7531	G4
1043	B8	2090	A4	2370	G7	2610	B2	3139	D8	3333	G10	3372	G6	3508	D5	5260	F10	6075	D5	6390	G8	7130	F7	7540	G5
1044	B8	2113	E6	2376	G8	2611	C3	3146	E8	3334	G10	3373	G8	3608	B1	5268	F11	6077	B6	6501	F4	7140	D8	7608	B2
1045	B10	2118	C8	2380	G9	2616	D4	3201	E7	3335	G10	3374	G8	3610	B2	5290	B10	6120	C9	6502	F4	7142	D8	7610	B3
1084	B10	2121	D8	2381	G8	2617	C4	3218	F7	3338	G10	3376	G8	3611	B3	5291	A10	6142	D11	6505	F5	7144	E6	7640	B1
1110	D8	2122	D7	2385	G9	2652	C2	3219	F7	3339	G9	3377	G8	3614	C2	5292	A11	6206	G8	6600	E3	7200	E7	7641	B1
1200	E8	2133	E7	2393	G8	2654	C2	3292	A10	3340	G9	3378	G8	3615	C2	5293	A11	6224	E9	6605	D4	7212	G7	7650	B1
1260	F10	2138	D8	2396	G9	2655	B2	3302	F10	3341	G8	3380	G8	3650	C2	5401	F2	6225	F9	6606	E4	7217	F7	7660	A3
1400	G1	2210	G8	2400	G2	2662	A1	3303	G9	3342	G8	3381	G8	3653	B1	5402	E2	6230	E8	6609	B3	7220	F10	9043	C8
1401	E10	2218	F7	2401	F3	2663	A3	3304	G10	3344	G8	3382	G9	3662	A3	5403	C2	6260	F10	6611	C3	7227	F10	9044	B8
1402	F1	2219	E7	2402	G1	2664	A3	3305	G9	3345	G8	3385	G8	3663	A4	5404	D2	6267	G10	6616	C3	7230	E9	9403	C2
1450	F5	2224	E10	2403	G2	2673	C1	3306	G9	3346	G8	3386	G9	3666	B2	5500	F5	6291	A9	7001	A5	7260	G10		
1460	E5	2225	F10	2404	F3	2674	C1	3307	G9	3347	G8	3387	G9	3668	C1	5505	G6	6312	G9	7002	D6	7304	G10		
2000	A5	2228	E10	2405	E1	2700	F7	3308	G9	3348	G9	3388	G10	3670	C1	5600	A2	6313	G9	7003	D6	7308	G9		



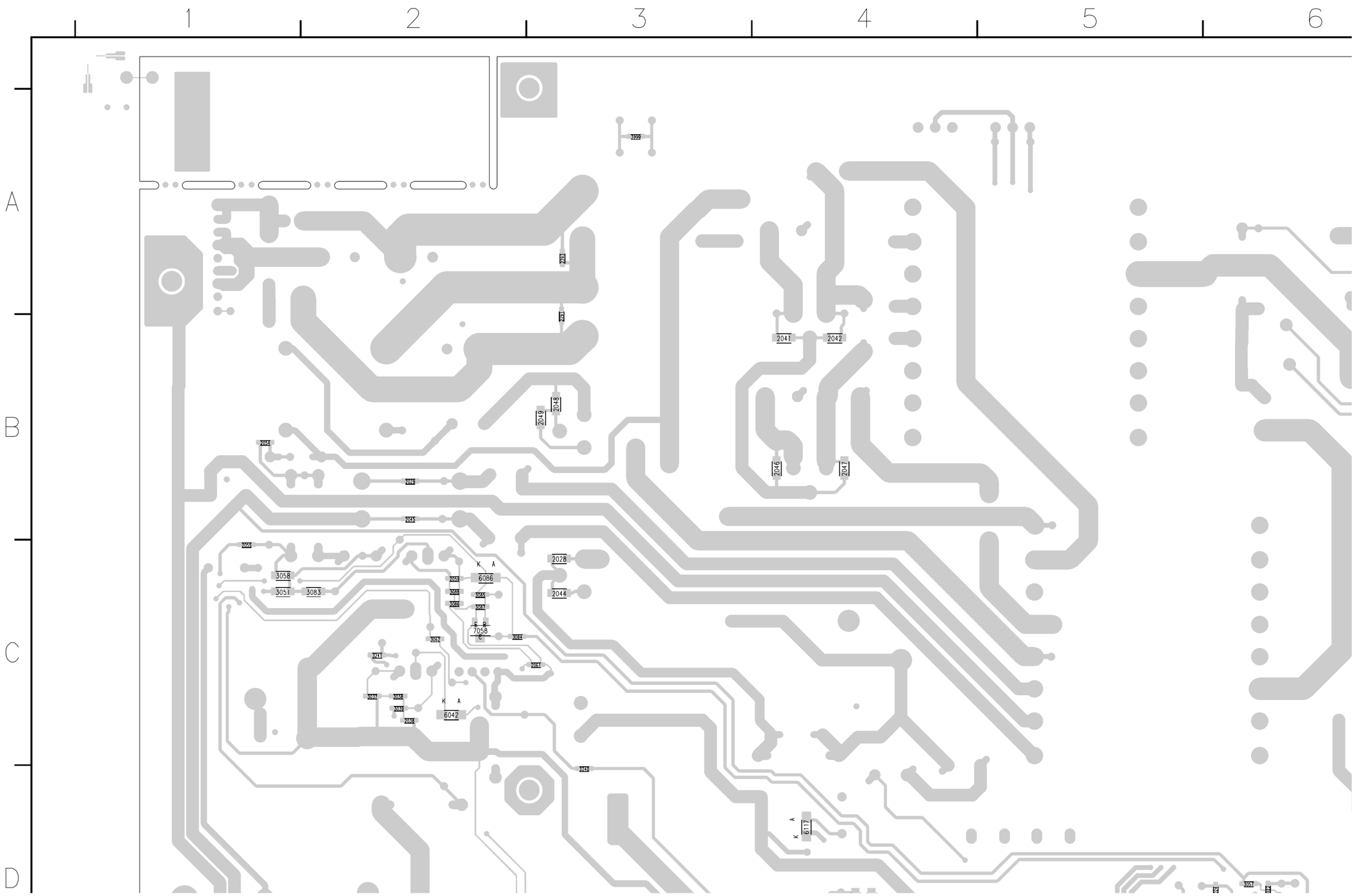
Layout Power Supply Panel (FM24 AB) (Overview Bottom Side)

2006 A7
2007 A8
2008 A8
2010 A8
2015 A8
2023 D6
2024 D6
2026 A8
2027 A8
2028 C3
2029 B2
2030 D6
2032 A8
2033 A8
2035 A6
2036 A8
2038 C2
2040 B8
2041 B4
2042 B4
2044 C3
2045 B2
2046 B4
2047 B4
2048 B3
2049 B3
2054 B1
2055 C1
2059 C2
2061 C3
2110 E6
2111 F6
2112 E6
2114 F6
2117 E6
2123 F6
2126 F6
2203 F5
2205 E5
2211 F4
2212 F5
2217 F5
2222 F3
2223 E3
2226 F2
2227 F2
2232 E4
2260 F2
2262 G2
2263 G1
2264 G2
2265 G2
2266 G2
2267 G2
2268 G2
2291 B3
2293 A3
2504 G8
2507 F7
2509 F7
2511 F7
2512 F7
2513 G8
2608 B11
2612 B10
2613 B10
2640 B11
2641 B11
2642 B11
2651 B11
2653 B11
2656 C11
2665 C11
2666 B10
2670 B11
2671 B11
2672 B11
3003 A7
3004 A7
3005 A7
3006 A8
3007 A8
3008 A8
3009 A8
3010 A8
3011 A8
3012 A8
3013 A8
3016 C7
3019 B7
3020 A8
3022 D6
3023 D6
3025 E5
3027 A8
3028 D5
3029 D6
3030 D6
3031 D5
3032 E5
3033 B7
3034 D6
3037 C2
3038 C2
3039 C2
3040 D5
3041 D5
3042 A7
3043 A8
3044 A7
3045 A7
3047 A7
3048 A8
3049 A8
3051 C1
3056 A7
3057 D6
3058 C1
3062 C2
3064 A8
3065 A8
3066 A8
3067 A8
3070 A7
3071 A8
3076 C7
3078 B8
3080 A8
3081 B8
3083 C2
3084 C2
3085 C2
3086 C2
3087 C2
3088 C2
3090 A8
3091 A8
3092 A8
3093 A8
3095 A7
3096 A7
3097 A7
3110 F6
3111 F6
3112 E6
3113 E6
3114 F6
3115 E6
3116 E6
3117 E6
3120 F6
3121 F6
3122 E5
3123 D5
3124 E5
3125 E5
3126 E5
3128 E6
3130 F6
3131 F5
3132 E5
3133 F5
3134 F6
3135 F6
3136 F6
3140 D4
3141 D4
3142 D4
3147 F5
3148 E7
3149 E7
3150 E6
3151 E6
3152 E6
3200 E5
3202 F5
3203 G5
3204 F5
3205 F5
3212 G5
3213 G5
3214 F5
3216 F5
3217 F5
3224 F2
3225 F2
3226 F2
3228 F3
3240 D3
3241 C2
3260 F2
3261 G2
3262 G1
3264 G2
3265 G2
3268 G2
3300 F4
3301 F4
3311 F1
3343 G4
3460 E7
3461 E7
3463 E7
3465 E6
3467 E7
3469 E7
3470 E7
3501 G7
3502 F7
3503 F7
3504 F7
3505 F7
3520 G8
3530 G8
3639 B11
3640 B11
3641 B11
3642 B11
3651 B11
3652 C11
3654 C10
3655 C10
3664 B11
3665 C11
3667 B11
3671 B11
3700 G6
3701 G6
3702 G6
3703 G6
3706 G6
3707 G6
3708 G6
3709 G6
3999 A3
4268 G2
5704 F6
5710 F6
6004 C7
6005 B7
6009 A8
6010 A8
6011 A8
6018 C7
6019 B7
6022 B8
6023 E5
6031 A7
6032 A7
6033 A7
6034 A8
6035 A8
6042 C2
6086 C2
6095 B7
6111 F6
6112 F6
6113 E6
6117 D4
6123 E6
6133 F5
6202 G5
6205 F5
6211 F4
6213 G5
6216 F5
6232 E3
6460 F7
6461 E7
6470 E7
6471 E7
6503 F7
6504 F7
6510 F9
6511 F9
6512 F9
6513 F9
6520 G8
6530 G7
6531 G8
6608 B10
6640 B11
6641 B11
6642 B11
6643 B11
6651 B10
6652 B10
6653 B11
6654 C10
6660 A9
6661 A9
6663 A9
6665 A11
6700 G6
6703 F6
6706 G6
6709 F6
7009 B8
7017 A8
7018 A8
7022 B8
7058 C2
7090 A8
7091 A8
7134 F6
7143 E6
7145 E6
7202 F5
7460 E7
7465 E7
7470 E7
7654 C10
7700 F6
7701 G6
7706 F6
7707 G6



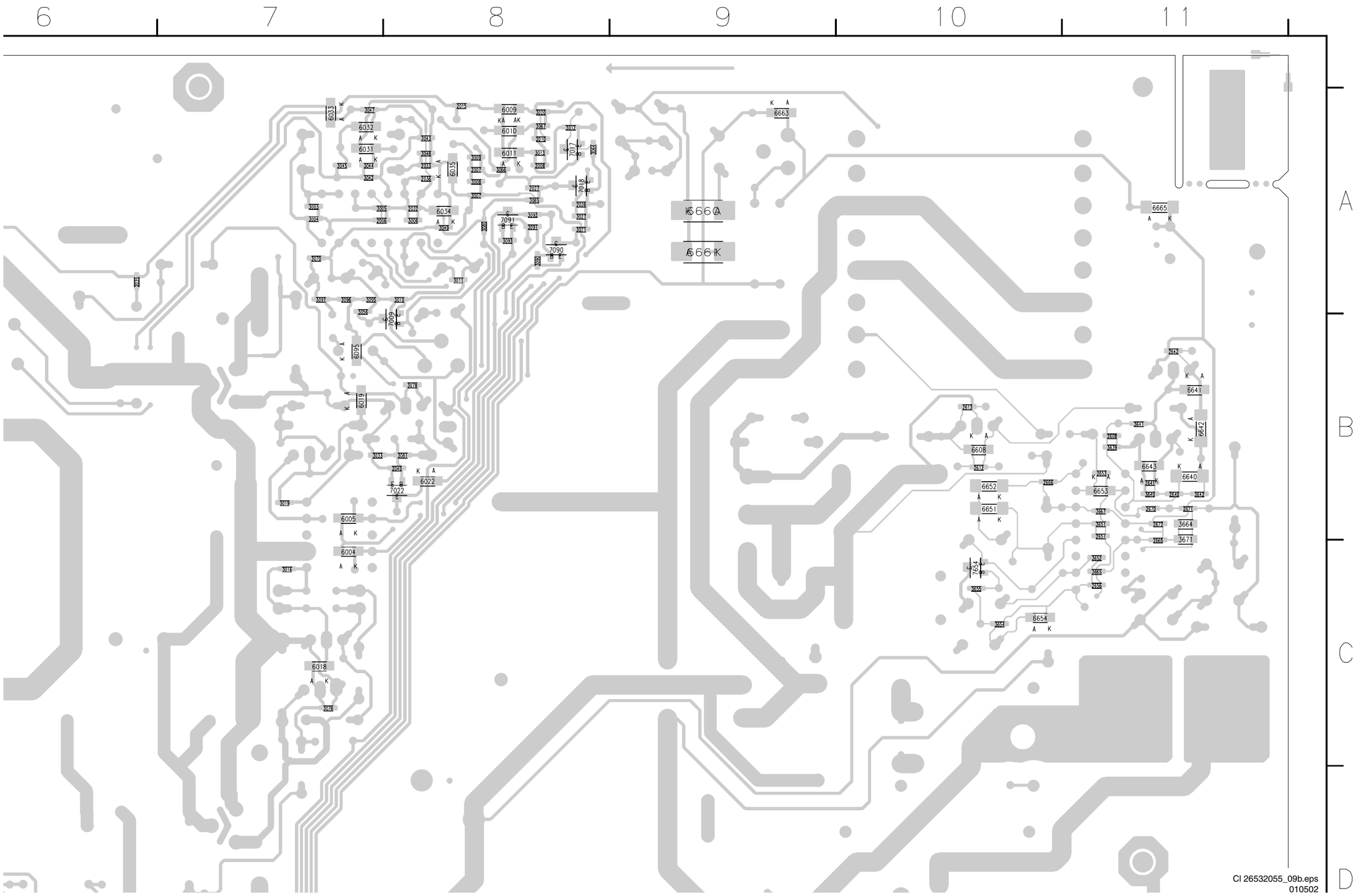
3122 123 6011.3

Layout Power Supply Panel (FM24 AB) (Part 1 Bottom Side)

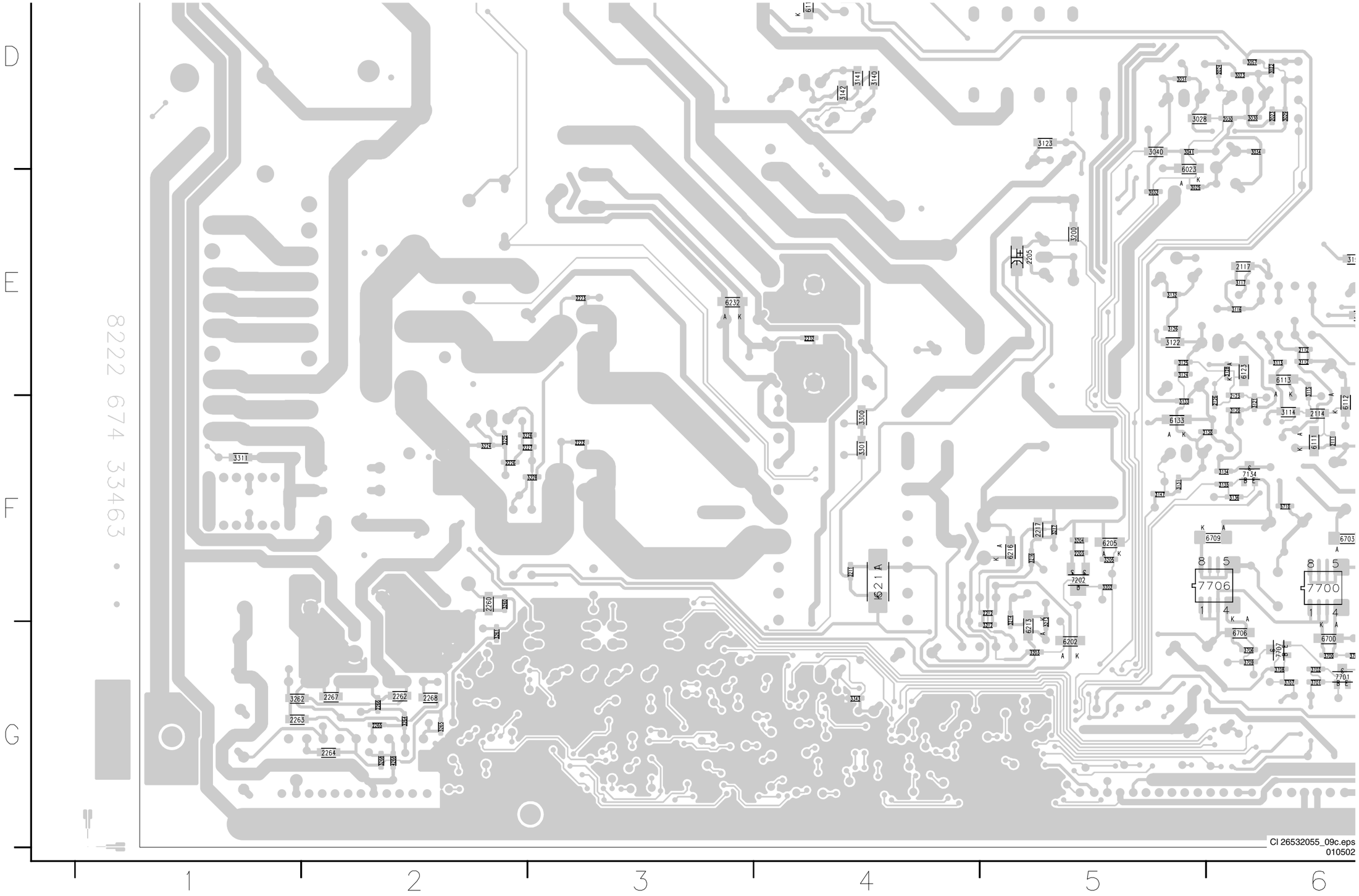


CI 26532055_09a.eps
010502

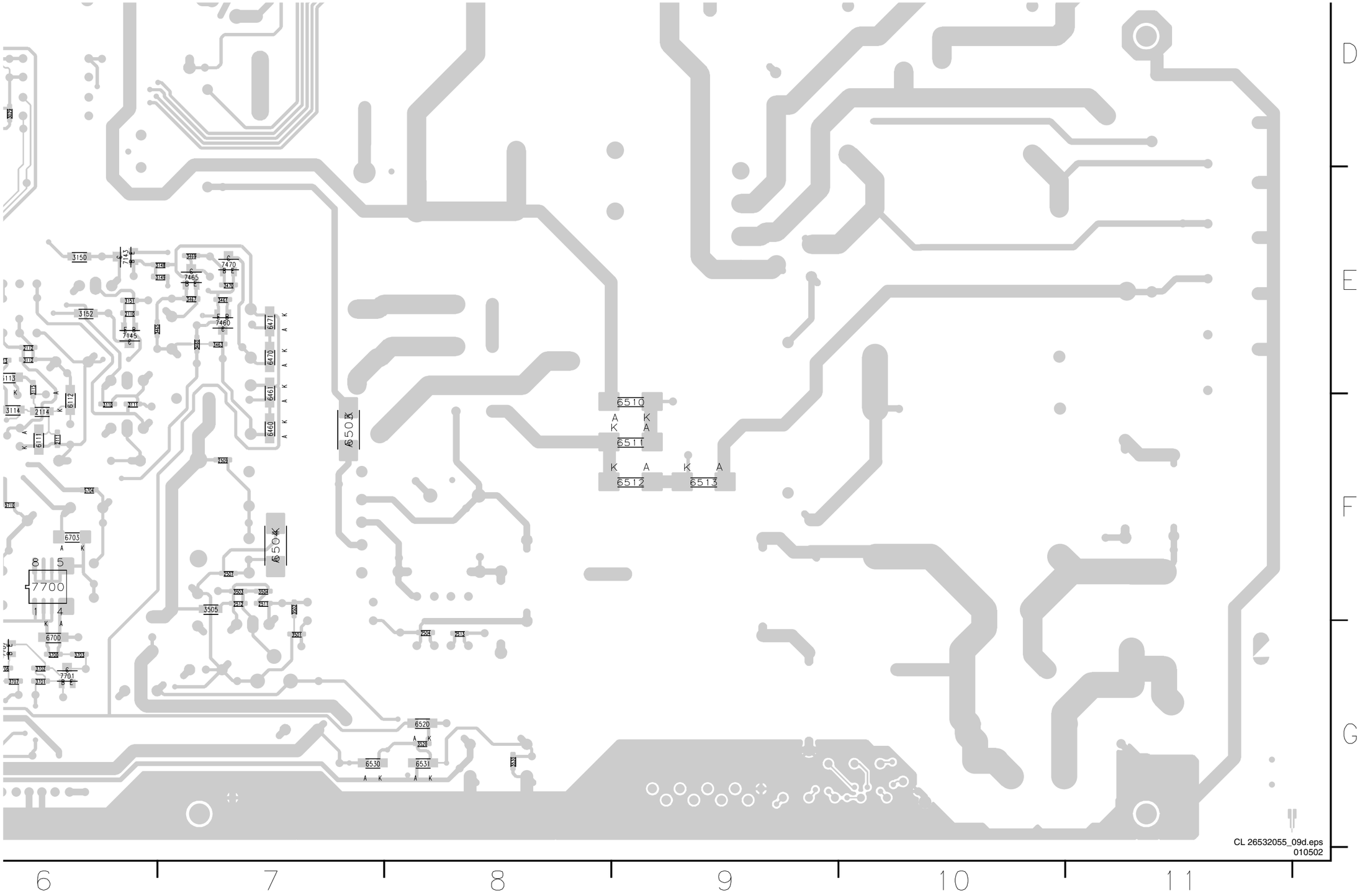
Layout Power Supply Panel (FM24 AB) (Part 2 Bottom Side)



Layout Power Supply Panel (FM24 AB) (Part 3 Bottom Side)

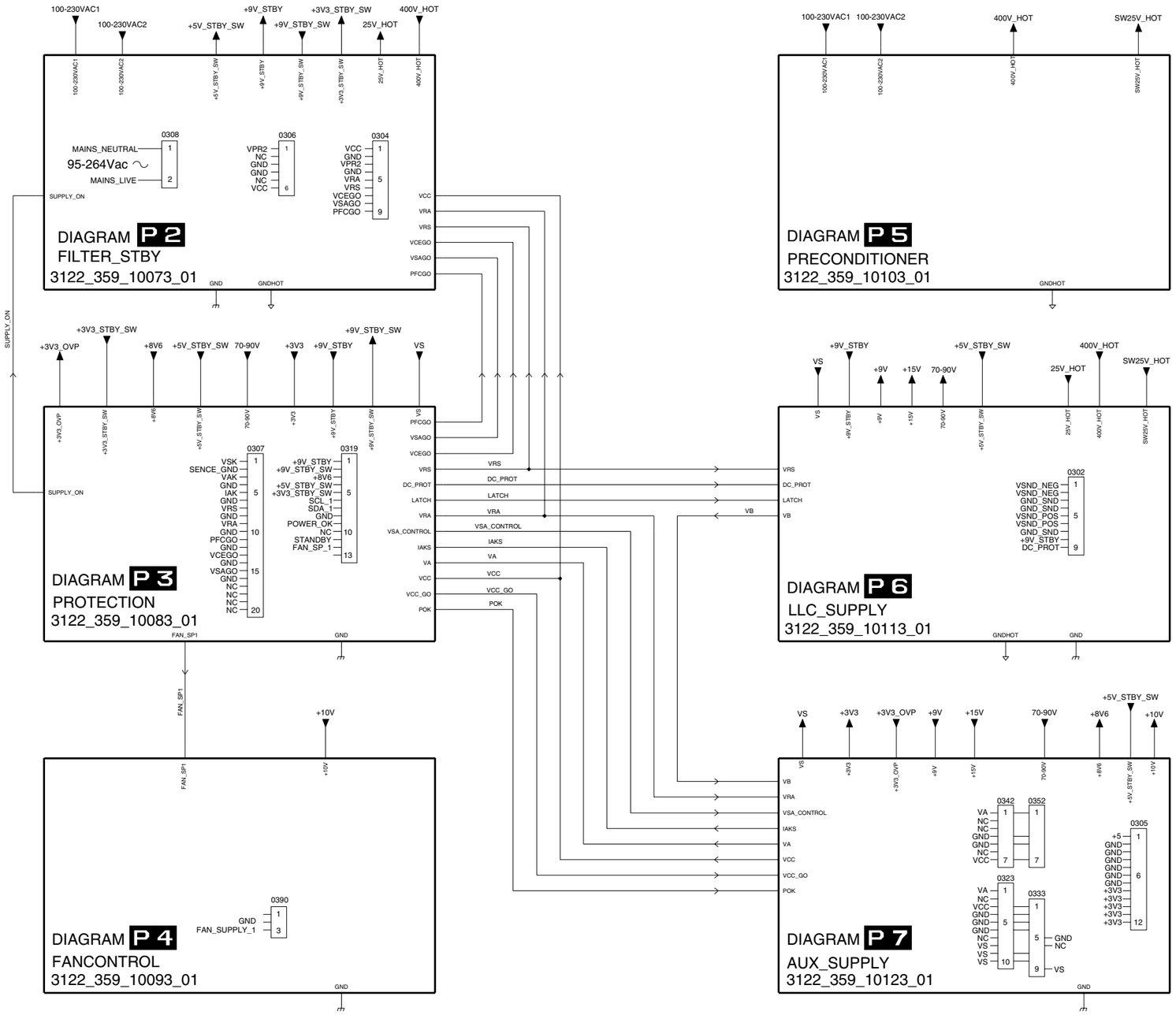


Layout Power Supply Panel (FM24 AB) (Part 4 Bottom Side)



Power Supply Panel (FM33 AA): Function Blocks and Diagram Connections

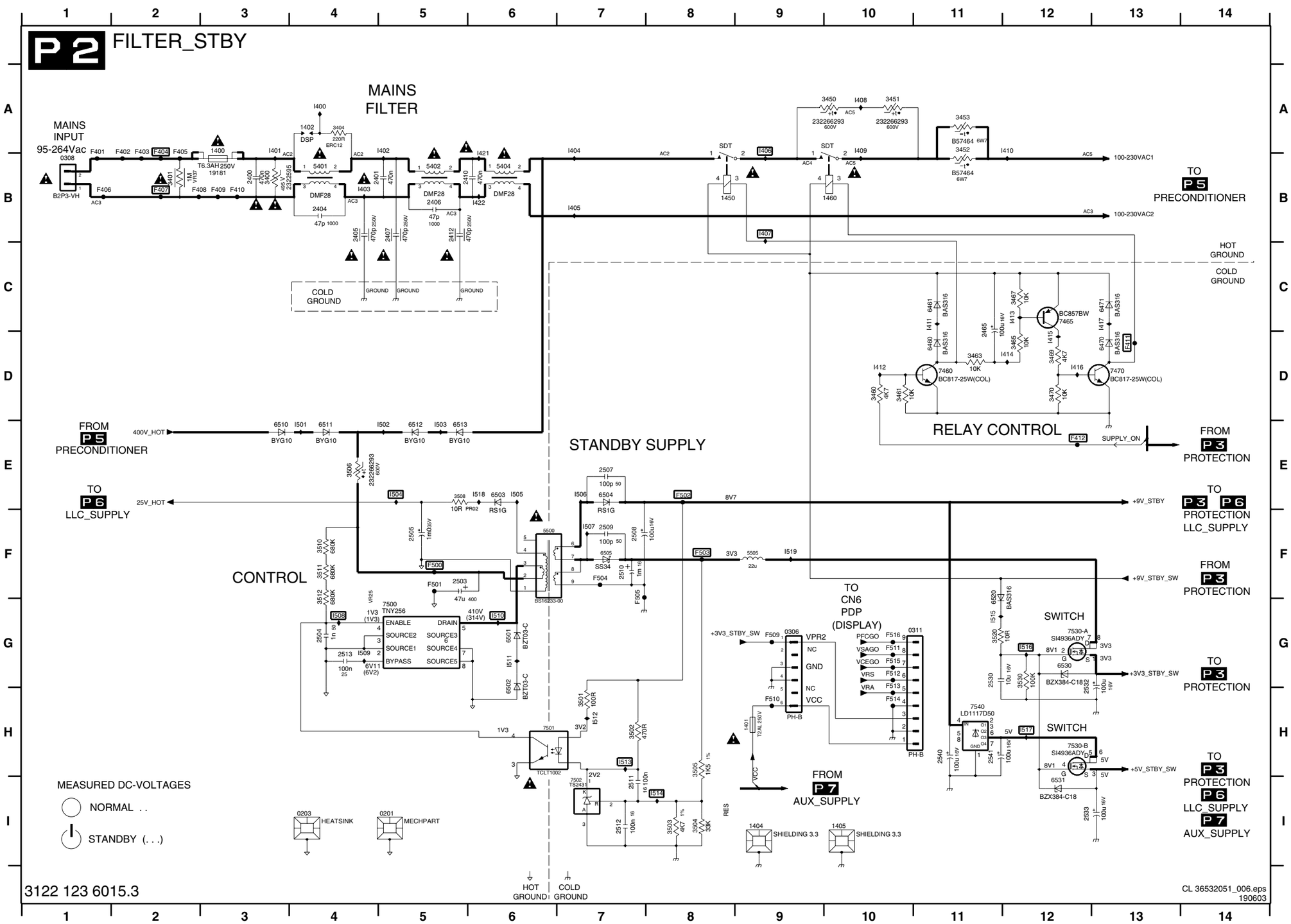
P 1 SUPPLY (FUNCTION BLOCKS AND DIAGRAM CONNECTIONS)



3122 123 6015.3

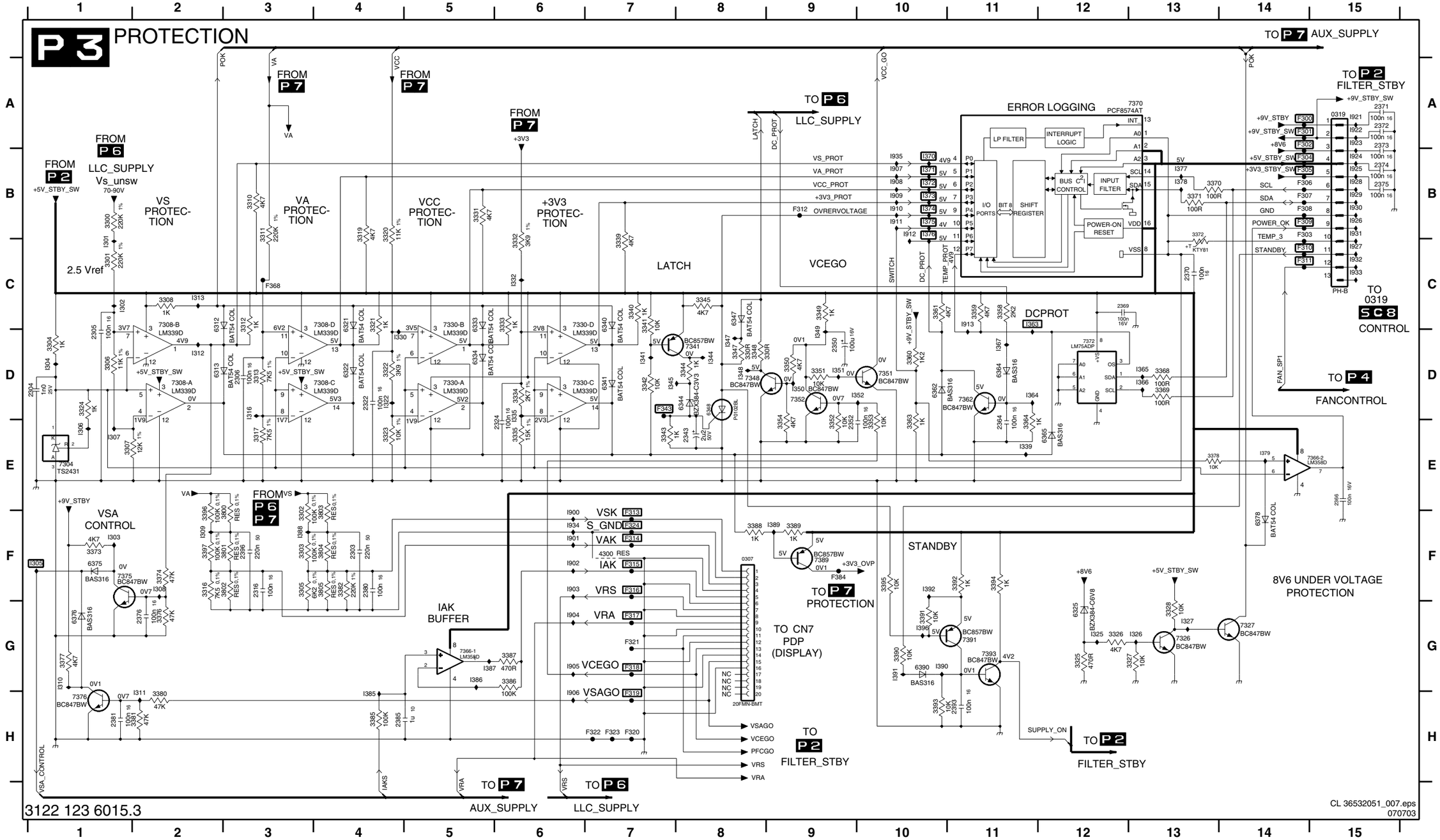
CL 36532051_005.eps
190603

Power Supply Panel (FM33 AA): Filter Standby

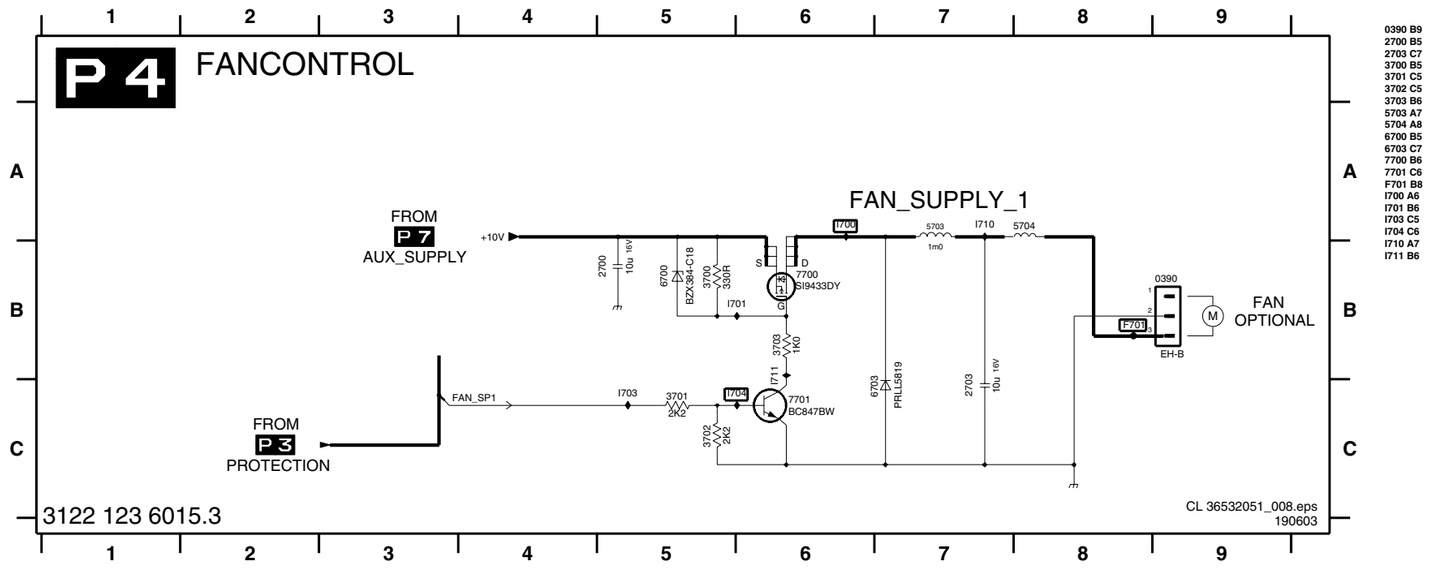


Power Supply Panel (FM33 AA): Protection

0307 F8	2350 D9	2375 B15	3303 F3	3316 F2	3327 G13	3342 D7	3353 E10	3370 B13	3382 F4	3394 F11	4300 F7	6344 D8	7304 E1	7330-D C6	7375 F1	F305 B14	F315 F7	F343 D7	I308 F2	I327 G13	I349 D9	I371 B10	I386 G5	I902 F6	I912 B10	I929 B15
0319 A15	2352 E9	2376 G2	3304 D1	3317 E3	3328 G13	3343 E7	3354 E9	3371 B13	3385 H4	3395 F10	6312 C2	6347 C8	7308-A D2	7341 D8	7376 H1	F306 B14	F316 F7	F368 C3	I309 F2	I330 D4	I350 D9	I372 B10	I387 G5	I903 F6	I913 C11	I930 B15
2303 F4	2364 E11	2380 F4	3305 F3	3319 B4	3331 B5	3344 D8	3358 C11	3372 B13	3386 G6	3396 F2	6313 D2	6348 D8	7308-B C2	7348 D8	7389 F9	F307 B14	F317 G7	F384 F9	I310 G1	I332 C6	I351 D9	I373 B10	I388 F3	I904 G6	I921 A15	I931 B15
2304 D1	2366 E15	2381 H1	3306 D1	3320 B4	3332 C6	3345 C8	3359 C11	3373 F1	3388 F8	3397 F2	6321 C4	6362 D10	7308-C D4	7351 D10	7391 G11	F308 B14	F318 G7	I301 C1	I311 H2	I335 D6	I352 D10	I374 B10	I389 F9	I905 G6	I922 A15	I932 C15
2305 D1	2369 C12	2385 H4	3307 E1	3321 C4	3333 C6	3347 D8	3360 C11	3374 F2	3389 F9	3800 F3	6322 D4	6364 D11	7308-D C4	7352 D9	7393 G11	F309 B14	F319 H7	I302 C1	I312 D2	I339 E11	I363 C11	I375 B10	I390 G10	I906 H6	I923 A15	I933 C15
2306 D3	2370 C13	2393 H11	3308 C2	3322 D4	3334 D6	3348 D8	3361 C10	3376 G2	3389 F9	3801 F3	6325 G12	6365 E12	7326 G13	7362 D11	7300 A14	F310 C14	F320 H7	I303 F1	I313 C2	I341 D7	I364 D11	I376 B10	I391 G10	I907 B10	I924 B15	I934 F6
2316 F3	2371 A15	2396 F3	3310 B3	3323 E4	3335 E6	3349 C9	3363 E10	3377 G1	3390 G10	3802 F3	6333 C5	6375 F1	7327 G14	7366-1 G5	7301 A14	F311 C14	F321 G7	I304 D1	I316 D3	I322 D4	I365 D13	I377 B13	I392 F10	I908 B10	I925 B15	I935 B10
2322 D4	2372 A15	3300 B1	3311 B3	3324 D1	3339 C7	3350 D9	3364 E11	3378 E13	3391 G10	3803 F4	6334 D5	6378 F14	7330-A D5	7366-2 E14	7302 A14	F312 B9	F322 H7	I305 F1	I325 G12	I345 D7	I366 D13	I378 B13	I393 F10	I909 B10	I926 B15	
2324 E6	2373 A15	3301 C1	3312 C3	3325 G12	3340 C7	3351 D9	3368 D13	3380 H2	3392 F11	3804 F4	6340 C7	6378 F14	7330-B C5	7370 A13	F303 B14	F313 F7	F323 H7	I306 E1	I326 G13	I348 D8	I367 D11	I379 E14	I394 F10	I910 B10	I927 C15	
2343 E8	2374 B15	3302 F3	3313 D3	3326 G12	3341 C7	3352 E9	3369 D13	3381 H2	3393 H10	3805 F4	6341 D7	6390 G10	7330-C D6	7372 D12	F304 B14	F314 F7	F324 F7	I307 E1				I385 H4	I901 F6	I911 B10	I928 B15	



Power Supply Panel (FM33 AA): Fan Control



0390 B9
2700 B5
2703 C7
3700 B5
3701 C5
3702 C5
3703 B6
5703 A7
5704 A8
6700 B5
6703 C7
7700 B6
7701 C6
F701 B8
I700 A6
I701 B6
I703 C5
I704 C6
I710 A7
I711 B6

Power Supply Panel (FM33 AA): Pre-Conditioner

P5 PRECONDITIONER

PRECONDITIONER

FROM P2 FILTER_STBY

100-230VAC2

100-230VAC1

GBU8J

6600

6606 S3J

6605 S3J

2600 1n0 1000V

2601 1n0 1000V

5600 BS42228-02

F601

I603

I604

2611 220p 2000

6611 BYV29X-500

F600

400V

400V_HOT

TO P2 FILTER_STBY AND P6 LLC_SUPPLY

F996 F997 3999 1K F998 F999

2605 1u 400

I605 6608 I634 BAS316

2612 1n 50

1V5 (0V) I606

3610 3R3

I607

7610 STY34NB50

5612 47R

I608

2610 1n8 2000

I630

I609

1V4 (0V)

BC369 7608

2613 1n 50

0V (0V)

3608 12R

I635

6609 BZG03-C18

3611 1K FLM 1%W

0V01 (0V)

3614 0R1 2W

3615 0R1 2W

2616 220u 400V

2617 220u 400V

F604 F605

F608

SW25V_HOT

TO P6 LLC_SUPPLY

3602 RES

I602

3601 RES

F602

GROUND

COLD GROUND

3662 RES NFR25

3663 1R NFR25

I610 I631 I632 I611 2663 100u 50V I612 6661 RS1G I613

6660 RS1G

2664 1u 100u50V

7661 MC34063AD

DCOL SWC SWE TIMC VCC CIN_NEG GND

S Q R

IPK OSC

REFERENCE REGULATOR

I639 I641 I642 I638 5660 220u I640

3675 1R0

2661 1n0

3678 47K

3677 47K

2660 470p

6663 SL04

6665 SL04

31V (5V7)

BIAS

2662 1m 25

MEASURED DC-VOLTAGES

NORMAL . .

STANDBY (. . .)

PRECONDITIONER CONTROL

3603 470K

3604 470K

3605 470K

3660 390R

3661 390R

3668 1K NFR25H

I621

I622

7650 MC33368

VREF RD VFB COMP MULT CS ZC AGND LINE NC1 NC2 FC VCC GATE PGND LEB

CONTROL

I623

3665 10K

F609

F610

3642 100R

6640 SL04

3641 470R

I625

14V7 (4V8)

7641 BC817

1V2 (0V)

I626

6641 BAS316

2642 1n 25

6642 SL04

I627

3675 1K NFR25H

2675 10n 1500V

2674 10n 1500V

I628

3683 33K

3684 33K

3685 33K

2673 4n7 500V

3680 270K

3681 270K

3682 270K

6654 BAS316

3654 10K

I617

2V3 (0V)

3655 1K I633

BC857BW 7654

I615

2654 47u 16V

3652 1M

I616

2656 100n 25

2655 1u 10

3651 10K

2651 10n 50

I618

I619

I620

3666 100R

2666 1n

4n7 50

6652 SL04

2653 330p 50

6653 BZX384-C8V2

3667 10K

2672 100n 25

2608 1n 25

2665 470p 50

3639 1K

2640 470p 50

I624

3640 330R

0V2 (0V) G

7640 BSN20 D S

1V5 D (0V)

6643 BZX384-C18

F606

2671 100n 16

I636

2670 1u 100n 16

3684 240K 1%

9671 1K1 1%

HOT GROUND

HOT BORDER

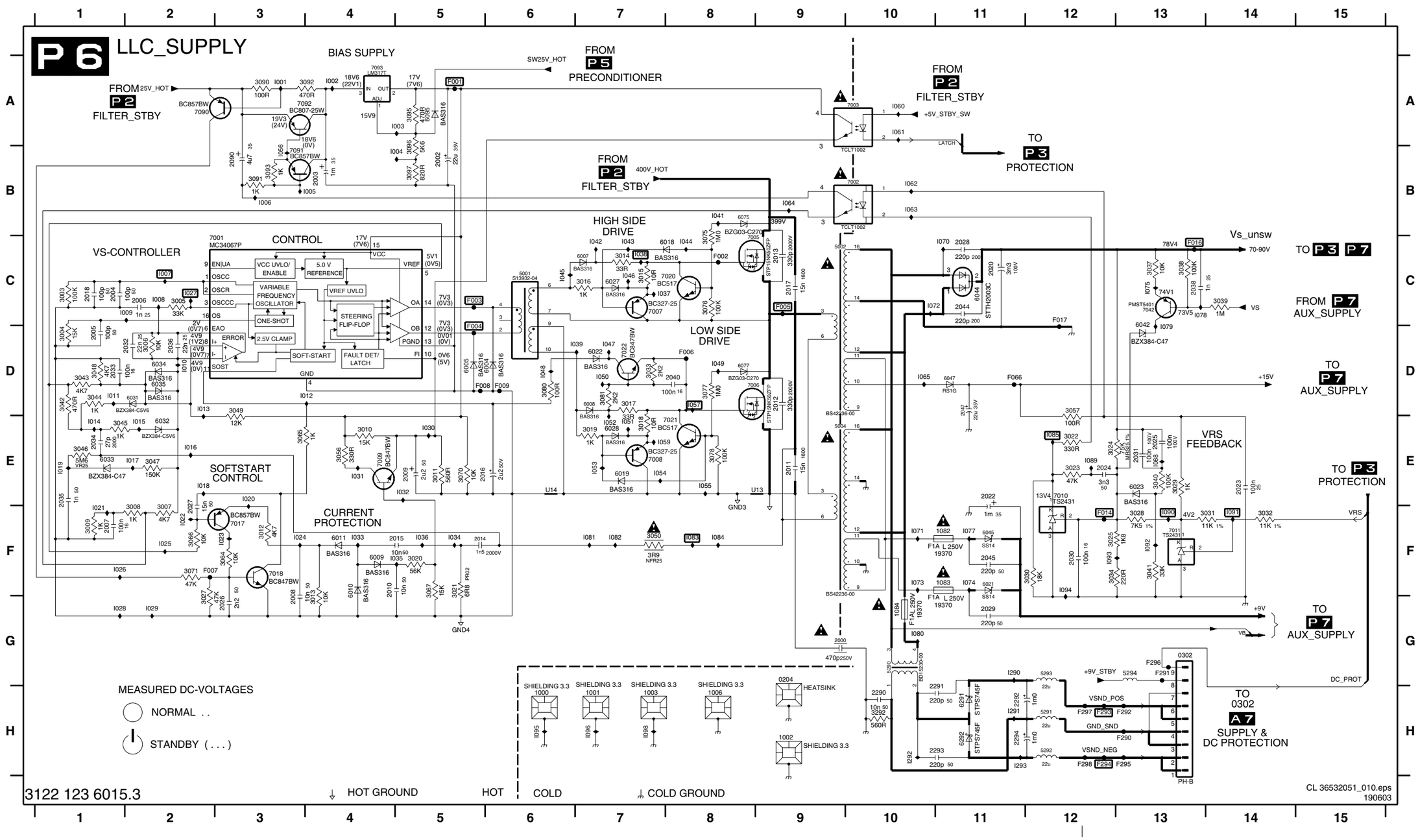
3122 123 6015.3

CL 36532051_009.eps 190603

2600 B3 I608 B7
2601 B2 I609 C8
2605 C3 I610 E5
2608 H8 I611 E6
2610 C7 I612 E7
2611 B8 I613 E7
2612 C6 I615 H1
2613 C6 I616 H3
2616 C9 I617 G2
2617 C9 I618 H4
2640 H9 I619 H4
2642 G11 I620 H5
2651 H4 I621 G4
2653 H5 I622 G7
2654 H1 I623 G8
2655 H3 I624 H9
2656 H2 I625 G10
2660 E10 I626 H10
2661 F8 I627 F12
2662 F11 I628 G11
2663 E7 I629 H11
2664 F7 I630 C8
2665 H8 I631 E5
2666 H4 I632 E6
2670 I12 I633 H2
2671 H12 I634 B6
2672 H7 I635 C6
2673 G12 I636 H12
2674 G12 I638 E10
2675 G12 I639 E8
3601 D2 I640 E11
3602 D2 I641 E8
3603 F3 I642 E10
3604 F3
3605 G3
3608 C5
3610 C6
3611 C7
3614 C8
3615 C8
3639 H8
3640 H9
3641 G9
3642 G9
3651 H3
3652 H3
3654 H1
3655 H1
3660 F5
3661 G5
3662 E6
3663 E6
3664 H12
3665 G8
3666 H4
3667 H6
3668 F7
3671 H12
3673 F12
3675 E8
3676 F8
3677 F8
3678 F8
3680 G12
3681 G12
3682 H12
3683 G12
3684 G12
3685 H12
3999 A11
5600 A5
5612 B7
5660 E11
6600 B2
6605 A3
6606 A2
6608 B6
6609 C7
6611 B8
6640 G9
6641 H10
6642 H11
6643 H9
6652 H5
6653 H5
6654 H1
6660 F7
6661 E7
6663 E10
6665 E11
7608 C6
7610 C7
7640 H10
7641 G10
7650 G6
7654 H2
7661 D8
F600 B10
F601 B3
F602 E2
F604 D10
F605 D10
F606 I10
F608 D11
F609 F9
F610 G9
F996 A10
F997 A10
F998 A11
F999 A11
I602 D2
I603 B4
I604 B7
I605 B5
I606 C6
I607 C7

Power Supply Panel (FM33 AA): LLC Supply

U13 E9 U14 E6 0204 G9 0302 G13 1000 H6 1001 H7 1002 H9 1003 H7 1006 H8 1082 F11 1083 F11 1084 G10 2000 G9 2002 B5 2003 B4 2004 C1 2005 D1 2006 C2 2007 F1 2008 G3 2009 E5 2010 F4 2011 E9 2012 D9 2013 C9 2014 F5 2015 E5 2016 E5 2017 C9 2018 C1 2020 C11 2022 E11 2023 E14 2024 E12 2025 E13 2026 G3 2027 F2 2028 C11 2029 G11 2030 F12 2031 E13 2032 D2 2033 D1 2034 E1 2035 E1 2036 D2 2038 C13 2040 D8 2044 C11 2045 F11 2047 D11 2090 B3 2291 H11 2292 H11 2293 H11 2294 H11 3003 C1 3004 D1 3005 C2 3006 D2 3007 F2 3008 F2 3009 F1 3010 E4 3011 E5 3012 F3 3013 G4 3014 C7 3015 C7 3016 C7 3017 D7 3018 E7 3019 E7 3020 F5 3021 F5 3022 E12 3023 E12 3024 E12 3027 G2 3028 F12 3029 E13 3030 F12 3031 F14 3032 F14 3033 D1 3034 F12 3035 C13 3037 C13 3038 C14 3039 C14 3040 E13 3041 F13 3042 D1 3043 D1 3044 D1 3045 E1 3046 E1 3048 D1 3049 D3 3050 F7 3056 E4 3057 D12 3064 F3 3065 E3 3066 F2 3067 F5 3070 E5 3071 F2 3075 C8 3076 C8 3077 D8 3078 E8 3080 D6 3085 E11 3086 E11 3087 E11 3088 E11 3089 E11 3090 A3 3091 B3 3092 A4 3093 B3 3095 A5 3096 B5 3097 B5 3292 H10 4004 D6 5001 C6 5002 C9 5004 E9 5290 G10 5291 H12 5292 H12 5293 G12 5294 G13 6005 D5 6007 C7 6008 D7 6009 F4 6010 F4 6011 F4 6019 E7 6021 F11 6022 D7 6023 E13 6027 C7 6028 E7 6031 D2 6032 E2 6033 E1 6034 D2 6035 D2 6042 D13 6044 C11 6045 F11 6047 D11 6075 C8 6077 D8 6091 E4 6092 E4 6093 E4 7001 C2 7002 B10 7003 A10 7005 C8 7006 D8 7007 C7 7009 E4 7011 F13 7017 F3 7018 F3 7020 C8 7021 E8 7042 C13 7090 A2 7091 B3 7092 A4 7093 A4 F001 A5 F002 C8 F003 C5 F004 D5 F005 C9 F006 D8 F007 F2 F008 D5 F009 D6 F014 F12 F016 C13 F017 C12 F066 D11 F290 H13 F291 G13 F292 H13 F293 H12 F294 H12 F295 H13 F296 G13 F297 H12 I001 A3 I002 A4 I003 A5 I004 B5 I005 B4 I006 B3 I007 C2 I008 C2 I009 C2 I010 D2 I011 D1 I012 E3 I013 D2 I014 E1 I015 E2 I016 E2 I017 E2 I018 E2 I019 E1 I020 E3 I021 F1 I022 F2 I023 F3 I024 F3 I025 F2 I026 F1 I027 G1 I028 E5 I029 G2 I030 E5 I031 E4 I032 E5 I033 F4 I034 F5 I035 F5 I036 F5 I037 C7 I038 C7 I039 D7 I041 B8 I042 C7 I043 C7 I044 C8 I045 C6 I046 C7 I047 D7 I048 D6 I049 D8 I050 D7 I051 E7 I052 E7 I053 E7 I054 E7 I055 E8 I056 B3 I057 D8 I059 E7 I060 A10 I061 A10 I062 B10 I063 B10 I064 B9 I065 D10 I066 C11 I069 D13 I070 C11 I071 F10 I072 F10 I073 F10 I074 F11 I075 C13 I077 F11 I078 C13 I079 D13 I080 G10 I081 F7 I082 F7 I083 F8 I084 F8 I085 E12 I086 E13 I087 E13 I088 E13 I089 E12 I090 F13 I091 F14 I092 F13 I093 F12 I094 F12 I095 H6 I096 H7 I098 H7 I290 G11 I291 H11 I292 H10 I293 H11



Power Supply Panel (FM33 AA): Aux Supply

P 7 AUX_SUPPLY

+3V3-SUPPLY

VA-SUPPLY

VCC-SUPPLY

SEQUENCE DISCHARGE

MEASURED DC-VOLTAGES

NORMAL . .

STANDBY . .

FROM P 6 LLC_SUPPLY

FROM P 3 PROTECTION

FROM P 2 FILTER_STBY

TO P 3 PROTECTION

TO P 2 P 3 FILTER_STBY

TO 0305 5C8 CONTROL-FUNCTIONS

TO P 4 FANCONTROL

TO CN33 PDP (DISPLAY)

TO CN23 PDP (DISPLAY)

TO CN42 PDP (DISPLAY)

TO CN52 PDP (DISPLAY)

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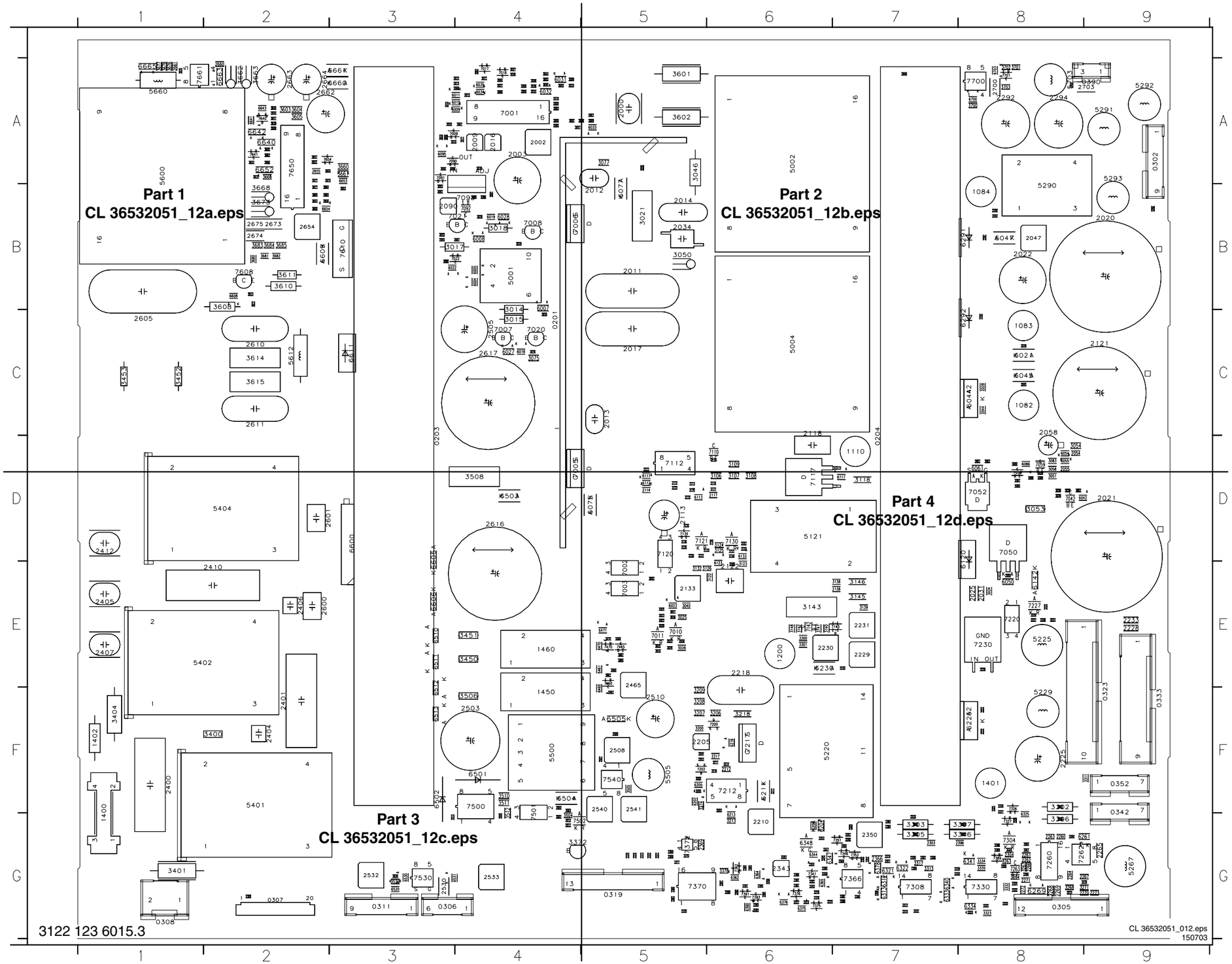
3122 123 6015.3

0305 A13	3214 I7	I105 C1
0323 E13	3216 H8	I106 C3
0333 D13	3217 I8	I107 C4
0342 G13	3218 I9	I108 D5
0352 G13	3224 G11	I109 D2
1110 B1	3225 H11	I110 D3
1200 G5	3226 H11	I111 C5
2021 I4	3228 F12	I112 D3
2050 G3	3260 A8	I113 E1
2054 C1	3261 A8	I114 E2
2055 F2	3262 B7	I115 D2
2058 H2	3263 A6	I116 D2
2059 I1	3264 B6	I117 D3
2061 I2	3266 B9	I118 D4
2111 D1	3267 B10	I120 D8
2112 D1	3268 B10	I121 D7
2113 E1	3270 B11	I122 E11
2114 E2	3271 B11	I123 D9
2117 D3	3272 B10	I124 D7
2118 C4	5121 C5	I125 D10
2121 D11	5220 G9	I126 D8
2122 D8	5225 G11	I127 D8
2123 D8	5229 H10	I128 D8
2126 E8	5267 A11	I129 E10
2133 E9	6050 G3	I131 E7
2138 D6	6054 E1	I132 E9
2203 I4	6055 E1	I135 C6
2205 I6	6061 I3	I152 C9
2210 I6	6086 I1	I153 D6
2211 I7	6111 D1	I154 D7
2212 H7	6112 E1	I155 D6
2217 I8	6113 D2	I156 D6
2218 H9	6117 C3	I157 E6
2222 G10	6120 D4	I158 C1
2223 G10	6123 D8	I159 E1
2225 H11	6133 B5	I160 E2
2226 H11	6142 G4	I161 G2
2227 G11	6202 I4	I200 G3
2228 H12	6204 F4	I201 H3
2229 H10	6205 I5	I202 I3
2230 I11	6206 F5	I203 I1
2231 I7	6211 I7	I204 I2
2232 I10	6213 I7	I207 I1
2233 H12	6216 H8	I208 H5
2260 A7	6225 G10	I209 H9
2261 A8	6230 I10	I210 G5
2262 B7	6261 A9	I211 F5
2263 B7	6269 A12	I212 G6
2264 A9	7050 G3	I213 H5
2265 A10	7052 I3	I214 H7
2266 B9	7058 I1	I215 H6
2267 A11	7059 I2	I216 H8
2268 A11	7110 C2	I217 H8
2269 A12	7112 C2	I218 H7
2270 B11	7117 C3	I219 I8
2271 C9	7120 B5	I220 H4
2272 A12	7121 D7	I221 I7
2273 C11	7130 E8	I222 I4
3051 G2	7134 E10	I224 I8
3053 H3	7140-A E5	I225 I1
3054 B1	7140-B D6	I230 F11
3058 G2	7142 D6	I231 F11
3062 H2	7200 G6	I233 G10
3083 H2	7202 H5	I234 G11
3084 I1	7212 H7	I235 G10
3085 I1	7217 H8	I236 H9
3086 I2	7220 F10	I237 H11
3087 I1	7227 H12	I238 G10
3088 I1	7230 I11	I240 I9
3106 C1	7260 A8	I243 I10
3107 C2	7262-A B10	I261 A8
3108 C2	7262-B A10	I262 A7
3109 C2	7263 B6	I263 A7
3110 C2	F102 C13	I264 B7
3112 D1	F106 F13	I265 A8
3113 D2	F107 G13	I266 C9
3114 D2	F110 A1	I267 B11
3115 D3	F111 C9	I268 B11
3116 D3	F113 G4	I269 B6
3117 D3	F114 I11	
3118 C4	F116 I11	
3120 D7	F118 E12	
3121 D7	F119 E12	
3122 D8	F120 F12	
3123 D8	F121 E13	
3125 E8	F123 E13	
3126 E7	F124 C12	
3128 E8	F125 E11	
3130 D9	F126 E11	
3131 D9	F127 E11	
3132 E7	F128 E11	
3133 C9	F129 F12	
3134 D10	F130 D12	
3135 E10	F131 D12	
3136 E10	F132 F13	
3138 D5	F133 F12	
3139 D6	F134 F12	
3140 E6	F135 G12	
3141 E6	F136 G12	
3142 E6	F137 H13	
3143 E5	F138 H12	
3145 C6	F139 H13	
3146 C6	F140 G12	
3147 D9	I260 A6	
3148 E7	I261 A9	
3200 G6	I262 A13	
3202 H5	I263 A9	
3203 I4	I264 B13	
3204 I5	I265 A9	
3205 I5	I266 B9	
3206 G7	I267 A12	
3207 G7	I268 A12	
3208 G7	I269 B9	
3209 G8	I270 C9	
3212 H6	I101 B2	
3213 I7	I102 C3	

Layout Power Supply Panel (FM33 AA) (Overview Top Side only (no components on bottom side))

0201 C4 0308 G1 0390 A9 1401 F8 2004 A4 2011 B5 2018 A4 2026 A4 2033 A4 2045 C8 2061 D8 2118 C6 2203 F5 2222 F8 2230 E6 2263 G8 2270 G9 2293 C8 2322 G8 2369 G5 2376 G6 2401 F2 2465 E5 2510 F5 2540 F5 2611 C2 2651 A2 2662 A2 2672 A2
0203 D3 0311 G3 1082 C8 1402 F1 2005 A4 2012 B5 2020 B9 2027 A4 2034 B5 2047 B8 2090 B3 2121 C9 2205 F5 2223 F8 2231 E7 2264 G8 2271 G8 2294 A8 2324 G8 2370 G5 2380 G7 2404 F2 2503 F4 2511 G4 2541 F5 2612 B2 2653 B3 2663 A2 2673 B2
0204 D7 0319 G5 1083 C8 1450 F4 2006 A4 2013 C5 2021 D9 2028 C8 2035 A5 2050 E8 2111 D5 2122 E6 2210 G6 2225 F8 2232 E7 2265 G9 2272 G8 2303 G7 2343 G6 2371 G5 2381 G6 2405 E1 2504 G4 2512 G4 2600 E2 2613 B2 2654 B2 2664 A2 2674 B2
0302 A9 0323 F9 1084 B8 1460 E4 2007 A5 2014 B5 2022 B8 2029 C8 2036 A4 2054 D8 2112 D5 2123 D5 2211 F6 2226 E8 2233 E9 2260 G8 2267 G9 2290 B8 2305 G7 2352 G7 2373 G5 2393 G6 2407 E1 2507 F5 2530 G3 2605 C1 2617 C4 2656 B2 2666 A2 2700 A8
0305 G8 0333 F9 1110 D7 2000 A5 2008 A4 2015 A4 2023 E5 2030 E5 2038 D8 2055 D8 2113 D5 2126 D6 2212 F6 2227 E8 2260 G8 2267 G9 2290 B8 2305 G7 2352 G7 2373 G5 2393 G6 2407 E1 2507 F5 2530 G3 2605 C1 2617 C4 2656 B2 2666 A2 2700 A8
0306 G3 0342 F9 1200 E6 2002 A4 2009 A4 2016 A4 2024 E5 2031 E8 2040 B3 2058 C8 2114 D5 2133 E5 2217 F6 2228 E9 2261 G8 2268 G8 2291 B8 2306 G7 2364 G6 2374 G5 2396 G8 2410 E2 2508 F5 2532 G3 2608 A2 2640 A2 2660 A2 2670 A2 2703 A9
0307 G2 0352 F9 1400 G1 2003 A4 2010 A3 2017 C5 2025 E8 2032 A4 2044 C8 2059 D8 2117 D6 2138 E7 2218 E6 2229 E7 2262 G8 2269 G8 2292 A8 2316 G7 2366 G7 2375 G5 2400 F1 2412 D1 2509 F5 2533 G4 2610 C2 2642 A2 2661 A1 2671 A2 3003 A4



3122 123 6015.3

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3009 A5 3206 F6 3465 E5 6050 E8 7134 D5
3010 A3 3207 F5 3467 E5 6054 D8 7140 E7
3011 A4 3208 F5 3469 E5 6055 D8 7142 E6
3012 A4 3209 F5 3470 E5 6061 D8 7200 F6
3013 A4 3212 F6 3501 G4 6075 D5 7202 F5
3014 B4 3213 G6 3502 F4 6077 B5 7212 F6
3015 C4 3214 F5 3503 F4 6086 D8 7217 F6
3016 C4 3216 F6 3504 G4 6095 A3 7220 E8
3017 B3 3217 F6 3505 F5 6111 D5 7227 E8
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3019 B4 3224 E8 3508 D4 6113 D5 7260 G8
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3028 E5 3264 G8 3603 A2 6205 F5 7341 G6
3029 E5 3266 G8 3604 A2 6206 G6 7348 G7
3030 E5 3267 G8 3605 A2 6211 F6 7351 G7
3031 E5 3268 G8 3608 B2 6213 G6 7352 G7
3032 E5 3270 G9 3610 B2 6216 F6 7362 G6
3033 B3 3271 G9 3611 B2 6225 F8 7366 G7
3034 E5 3272 G8 3614 C2 6230 E6 7370 G5
3037 D8 3292 B8 3615 C2 6261 G9 7372 G5
3038 D8 3300 E6 3639 A2 6269 G8 7375 G6
3039 D8 3301 E6 3640 A2 6291 B8 7376 G6
3040 E5 3302 F8 3641 A2 6292 C8 7389 G8
3041 E5 3303 G7 3642 A2 6312 G7 7391 G6
3042 A4 3304 G8 3651 A2 6313 G7 7393 G6
3043 A4 3305 G7 3652 B2 6321 G7 7460 E5
3044 A4 3306 G7 3654 B2 6322 G7 7465 E5
3045 A4 3307 G7 3655 A2 6325 G8 7470 E5
3046 A5 3308 G7 3660 A3 6333 G7 7500 F4
3047 A4 3310 G7 3661 A3 6334 G8 7501 F4
3048 A4 3311 F9 3662 A2 6340 G7 7502 G4
3049 A3 3312 G7 3663 A2 6341 G8 7530 G3
3050 B5 3313 G7 3664 B2 6344 G6 7540 F5
3051 D8 3316 G8 3665 B2 6347 G6 7608 B2
3053 D8 3317 G7 3666 A2 6348 G6 7610 B3
3054 D8 3319 G7 3667 A2 6362 G6 7640 A2
3056 A3 3320 G8 3668 B2 6364 G6 7641 A2
3057 E5 3321 G7 3671 B2 6365 G6 7650 A2
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3066 A4 3326 F8 3678 A1 6460 F5
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3078 B4 3335 G8 3700 A8 6504 F4
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3085 D8 3343 G6 3801 G8 6513 F3
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3087 D8 3345 G6 3803 F8 6530 G3
3088 D8 3347 G6 3804 G7 6531 G3
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3092 A3 3350 G7 4300 G2 6606 E3
3093 B3 3351 G7 5001 B4 6608 B2
3095 B4 3352 G7 5002 A6 6609 B2
3096 B4 3353 G6 5004 C6 6611 C3
3097 B4 3354 G7 5121 D6 6640 A2
3106 D6 3358 G6 5220 F6 6641 A2
3107 D6 3359 G6 5225 E8 6642 A2
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3109 D6 3361 G6 5267 G9 6652 A2
3110 D6 3363 G5 5290 B8 6653 A3
3112 D5 3364 G6 5291 A9 6654 B2
3113 D5 3368 G5 5292 A9 6660 A3
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3117 D6 3372 G4 5402 E1 6700 A8
3118 D7 3373 G6 5404 D2 6703 A8
3120 D5 3374 G6 5500 F4 7001 A4
3121 D5 3376 G6 5505 F5 7002 E5
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3125 D6 3381 G6 5703 A8 7007 C4
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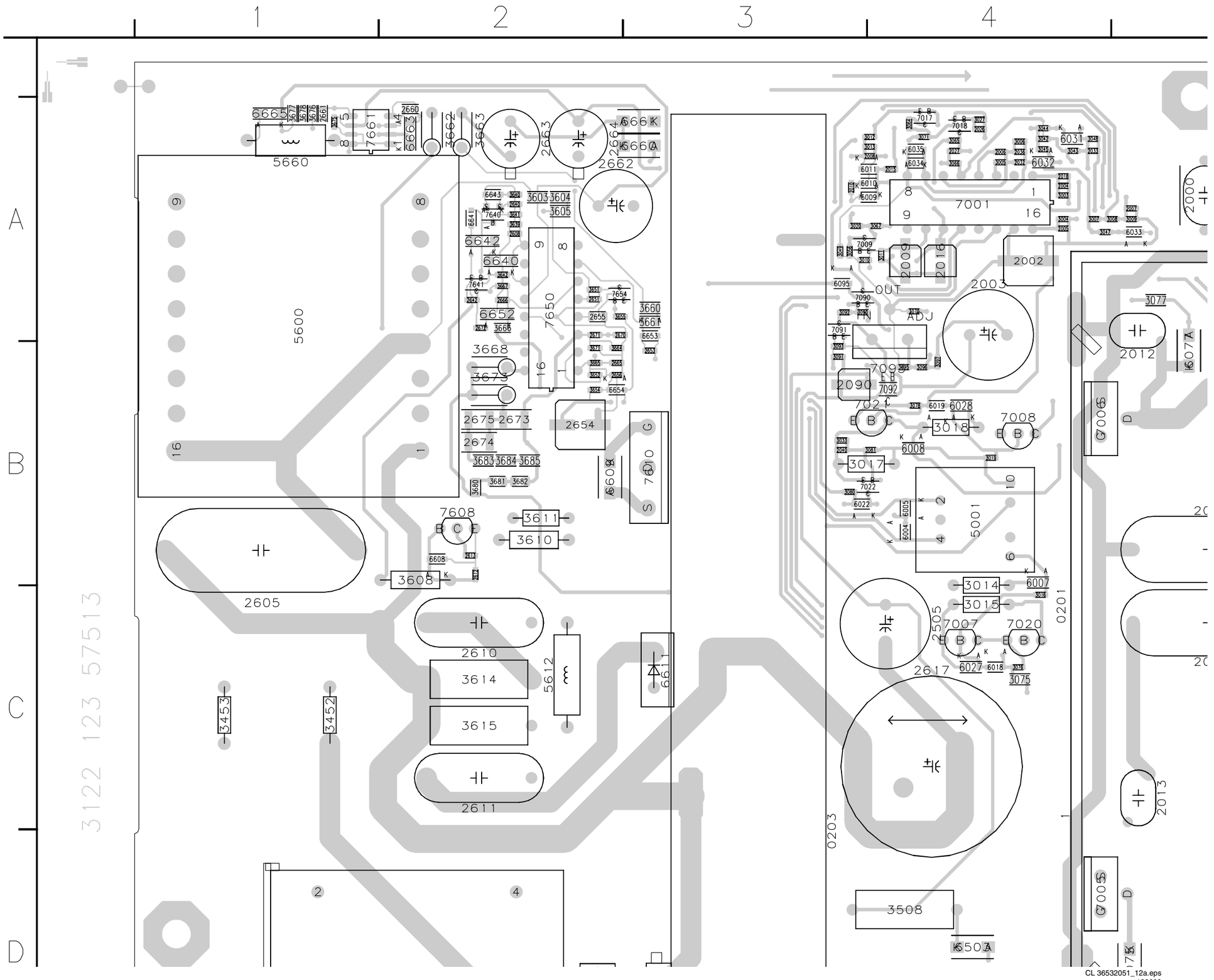
Layout Power Supply Panel (FM33 AA) (Part 1 Top Side)



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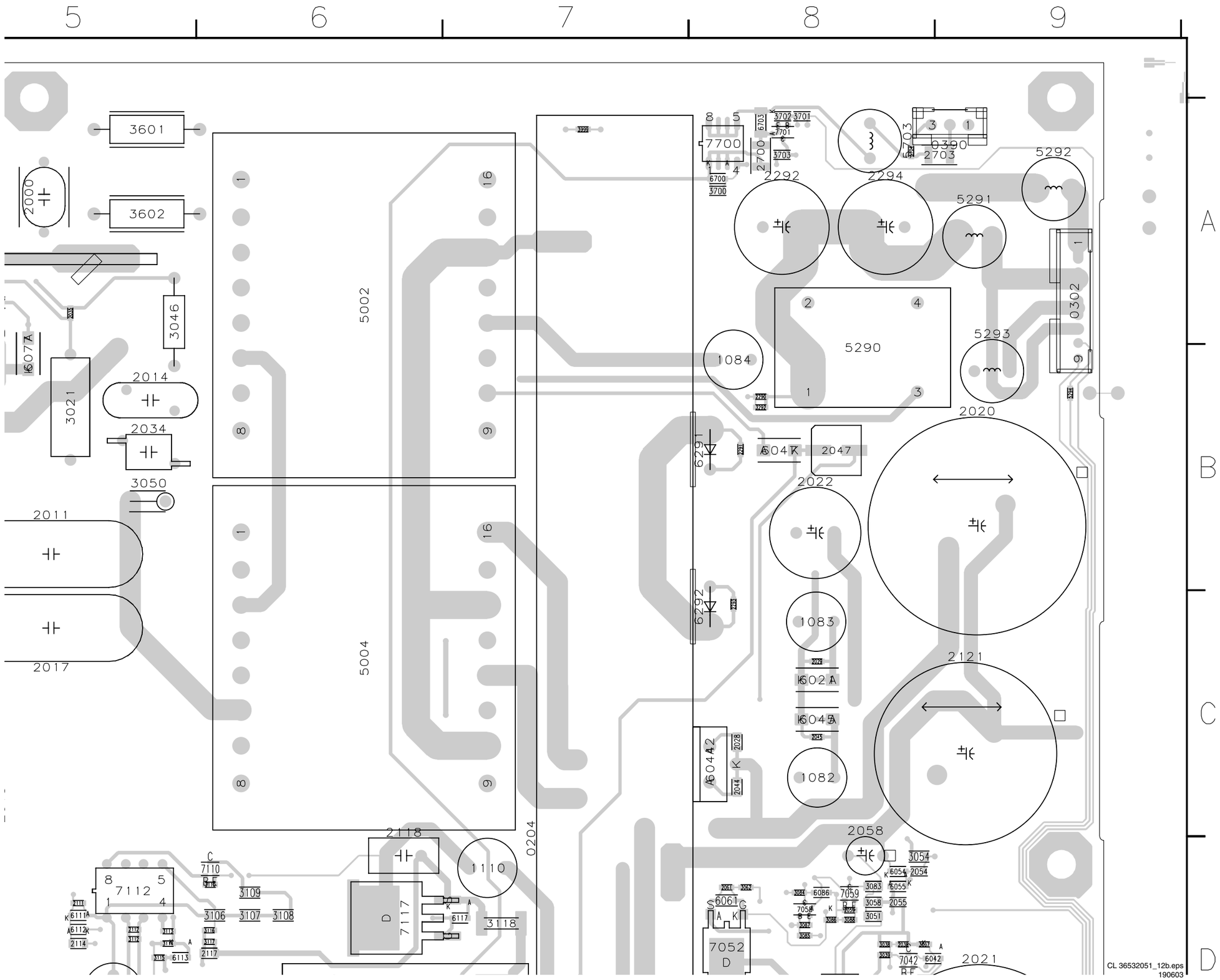
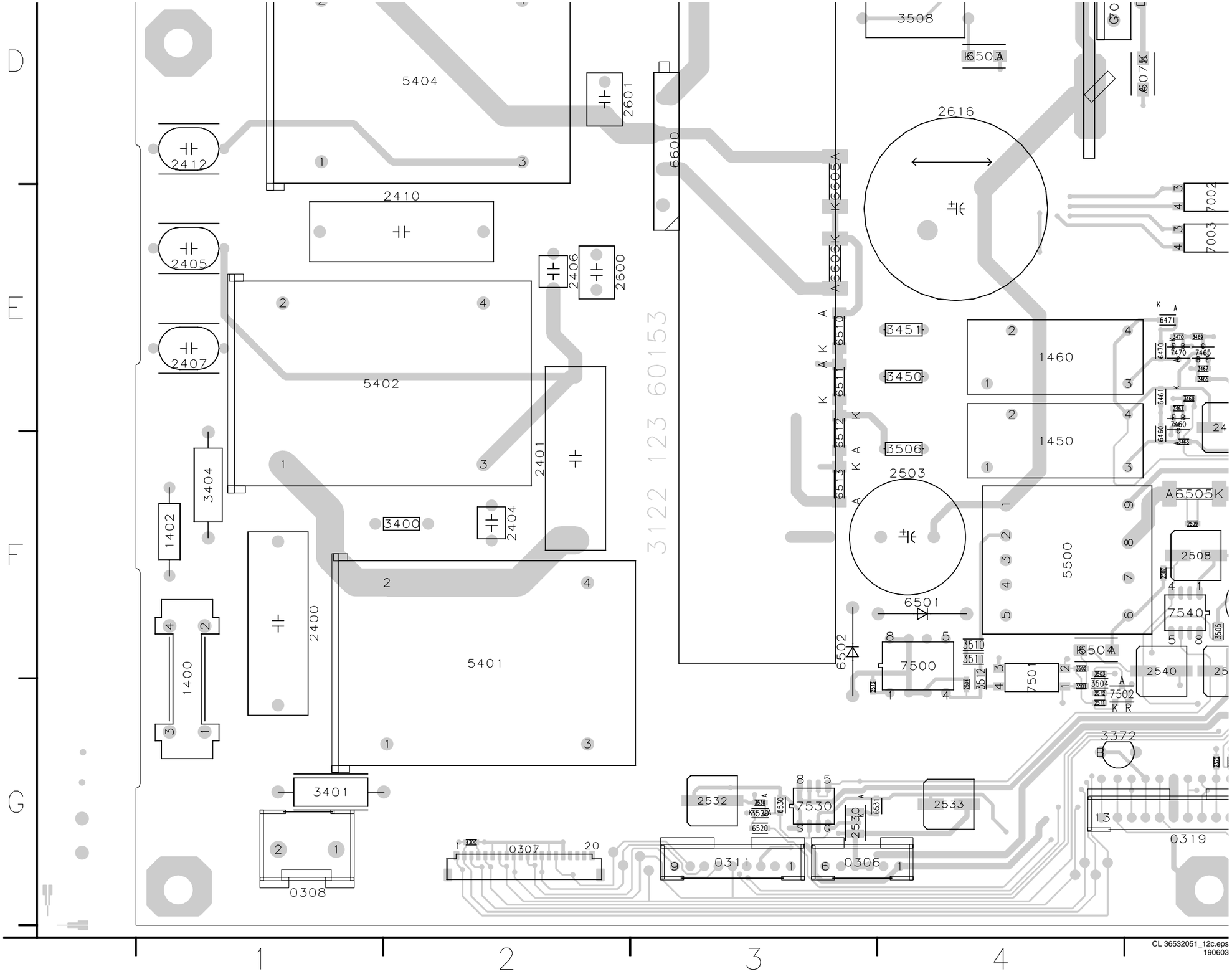
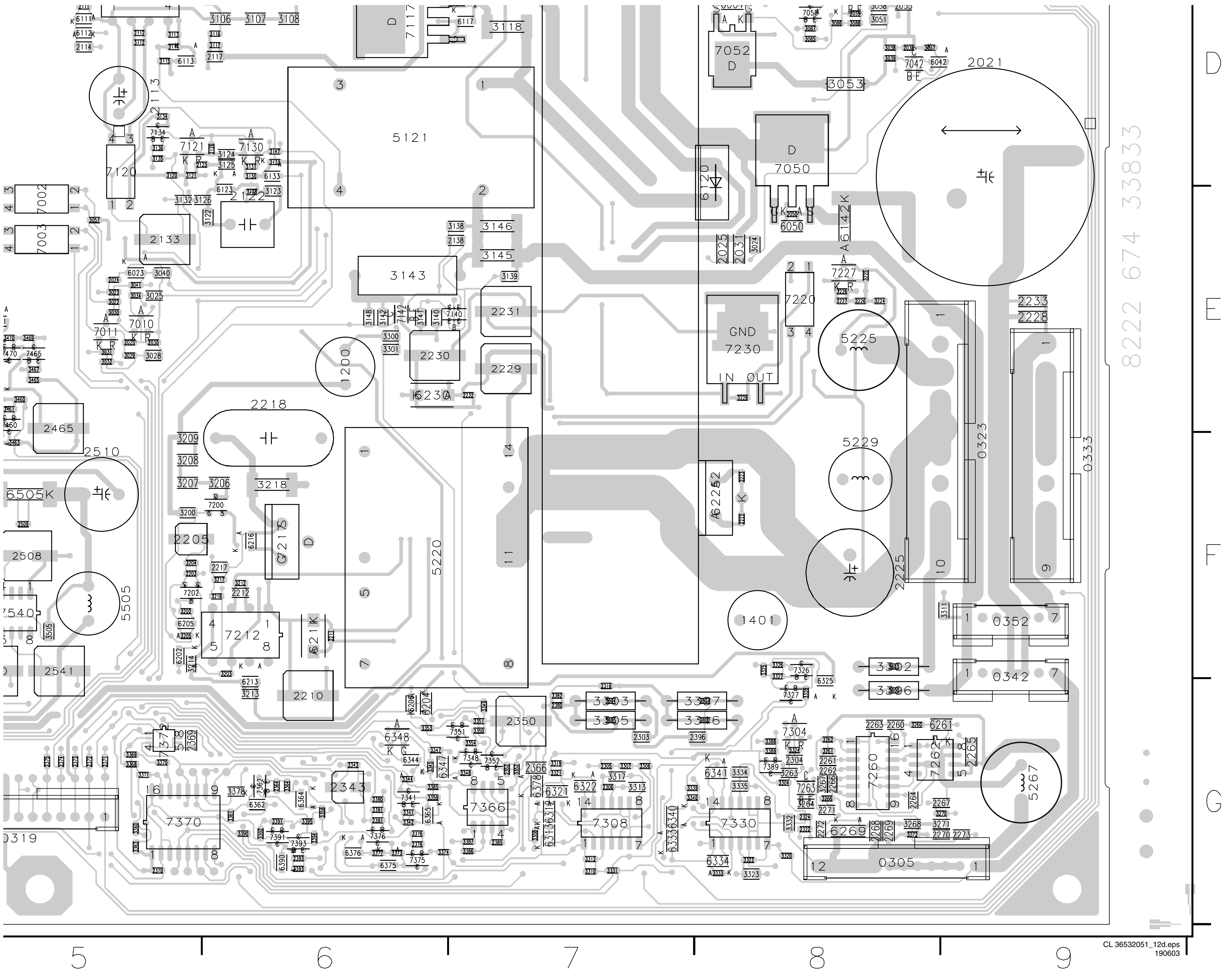
Layout Power Supply Panel (FM33 AA) (Part 2 Top Side)



Layout Power Supply Panel (FM33 AA) (Part 3 Top Side)



Layout Power Supply Panel (FM33 AA) (Part 4 Top Side)



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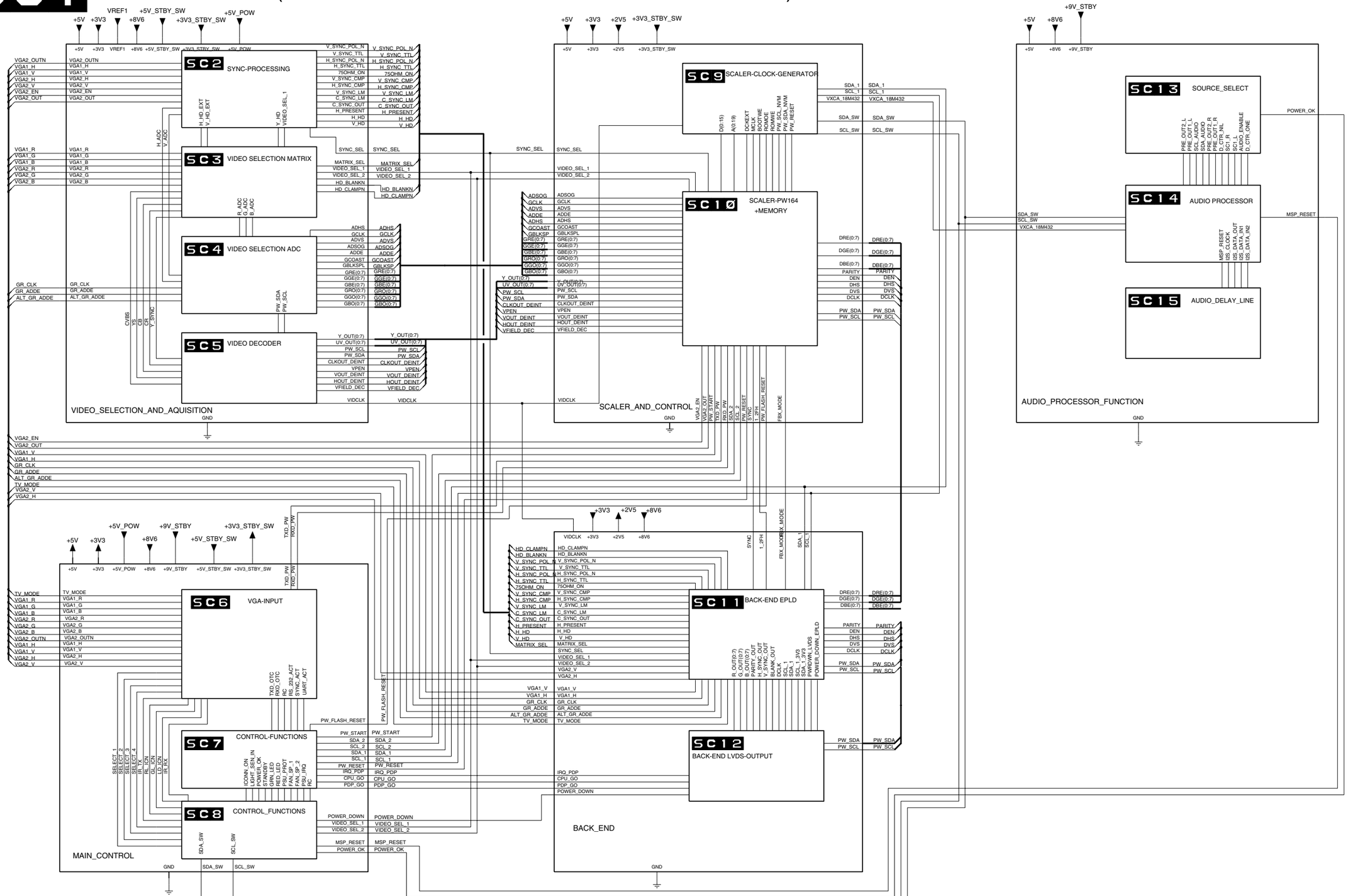
SCAVIO Panel: Function Blocks and Diagram Connections

SC1 SCAVIO PANEL (FUNCTION BLOCKS AND DIAGRAM CONNECTIONS)



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SCAVIO Panel: Sync Selection & Switching

SC2

SYNC SELECTION & SWITCHING

(ENHANCED ONLY UNLESS INDICATED OTHERWISE)

SC3

SC6 10 11

TO SC3 4 6 8 10

SWITCH

SWITCH

SYNC. SLICER

SHIELDING 3.3 1001

SHIELDING 3.3 1002

SHIELDING 3.3 1003

3122 123 6001.7

CL 36532051_015.eps 140703

1001 I7
1002 I7
1003 I8
2000 A3
2001 B4
2002 C5
2003 C6
2004 D2
2005 E2
2007 F11
2008 C5
2009 B12
2012 D5
2014 E6
2015 E5
2020 F5
2021 F4
2022 G4
2030 H4
2034 I4
2040 G8
2041 G8
2042 G9
2060 I10
2061 H13
2066 E14
3000 A4
3001 C2
3002 C4
3003 C5
3004 C5
3005 C6
3006 D2
3007 E10
3008 E6
3010 E2
3011 D4
3012 E4
3013 E5
3014 D6
3015 E2
3019 B9
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3022 G4
3023 G4
3024 G4
3025 G6
3026 F6
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3035 H6
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3040 G7
3041 F8
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3053 H12
3054 G12
3060 I12
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3066 E13
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4007 D8
4009 E13
4010 C13
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5007 F11
5009 A12
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6007 E9
6009 C11
6010 E1
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7001 B5
7002 B6
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I030 H5
I031 H4
I032 H6
I033 H10
I034 H4
I035 H4
I036 H13
I037 I12
I038 A12
I039 G9
I040 D10
I041 A10

SCAVIO Panel: Video Selection & Matrix

SC3 VIDEO-SELECTION & MATRIX (ENHANCED ONLY UNLESS INDICATED OTHERWISE)

0377 SPEAKERLESS VERSION

TO SC2

CVBS + Y INPUT ONE BLOCK WITH AUDIO_YC + AUDIO_CVBS ON SC 13

ONE BLOCK WITH AUDIO_RGB ON SC 13

0379-A COMBI · 0380-C COMBI · 0380-B COMBI

NOT FOR SPEAKERLESS

MATRIX

VIDEO-SELECTION

4 X SWITCH

BASIC+ENHANCED

BASIC

TO SC5 6 11

TO SC4

SC8

CL 36532051_016.eps 140703

3122 123 6001.7

0377 A2	3133 E14	7158-A G13
0379-A A2	3134 A6	7158-B I13
0380-B A4	3135 A7	7160 H11
0380-C A3	3136 A7	7165 A14
2072 C3	3137 A8	F070 A2
2077 D3	3138 A9	F071 A3
2082 E3	3139 A9	F072 A5
2088 C6	3140 B10	F073 A2
2089 C7	3141 B11	F074 A3
2090 D6	3142 B11	F075 A5
2097 F6	3144 D10	F076 A3
2103 G6	3145 D10	F089 C7
2105 C10	3146 D11	F146 E14
2106 C9	3147 E10	F152 F14
2107 C9	3148 E10	F158 H14
2108 E8	3149 E11	I050 C4
2109 E7	3150 F10	I051 C2
2110 H7	3151 F10	I052 C3
2111 H8	3152 F11	I053 C4
2112 F2	3153 G10	I054 C6
2113 F3	3154 G10	I055 C5
2114 D6	3155 G11	I056 D5
2116 H2	3156 H10	I057 D3
2117 H3	3157 H10	I058 D6
2118 F3	3158 H11	I059 D2
2119 H3	3159 I10	I060 D3
2120 I2	3160 H10	I061 D5
2123 I3	3161 I11	I062 D3
2124 E6	3162 G13	I063 E5
2127 H6	3163 G13	I064 F5
2128 I6	3164 A13	I065 F6
2134 A6	3165 H13	I066 E3
2137 A9	3166 H13	I067 E2
2140 B10	3170 D9	I068 E3
2142 I10	3171 F9	I069 E3
2143 I10	3172 H9	I070 F5
2144 D10	3173 D9	I071 G5
2145 D12	3174 C10	I072 G6
2146 D14	3175 B9	I073 F2
2147 E10	3176 C9	I074 F2
2150 F10	3177 E7	I075 G5
2151 F14	3178 D7	I076 G3
2152 F14	3179 H7	I077 H5
2153 G10	3180 I7	I078 H6
2156 H10	3181 I8	I079 I5
2157 G12	3182 I9	I080 I5
2158 H14	3183 H8	I081 H2
2159 I10	3184 H8	I082 H2
2160 A12	3186 E9	I083 I6
2161 B12	3188 I11	I084 H3
2162 B12	3189 G11	I085 I5
2164 A13	3190 E11	I086 I2
2165 A13	3193 I3	I087 I2
2166 A13	3194 H3	I088 I3
2167 A14	3195 G3	I090 I7
2168 B14	4146 E13	I099 A13
3071 C2	4152 G13	I100 A13
3072 C2	4158 H13	I101 A14
3073 C3	5089 C7	I102 A6
3074 C3	5090 C7	I103 A7
3075 C4	5140 I10	I104 A7
3076 D2	5160 A12	I105 A8
3077 D2	5161 B12	I106 A9
3078 D3	5162 B12	I107 A10
3079 D3	5164 A13	I108 A12
3080 D4	5166 B14	I109 B10
3081 E2	5167 B14	I110 B11
3082 E2	5170 I1	I111 B11
3083 E3	5175 B10	I112 B14
3084 E3	5180 D8	I113 I10
3085 F4	6071 C2	I114 D10
3086 C5	6076 D2	I115 D11
3087 C5	6091 F2	I116 D11
3088 D5	6105 C9	I117 E10
3089 D6	6166 A14	I118 E10
3090 D5	7074 C3	I119 E11
3091 D5	7075 B4	I120 F10
3092 E5	7079 D3	I121 F11
3093 E6	7080 D4	I122 F11
3094 E5	7084 E3	I123 G10
3095 F5	7085 E4	I124 G10
3096 F5	7088-A C5	I125 G11
3097 F6	7088-B H5	I126 H10
3098 F5	7088-C F5	I127 H11
3099 G5	7089-A H7	I128 H11
3100 G5	7089-B F7	I129 I10
3101 G5	7089-C D7	I130 I11
3102 G5	7090-A D5	I131 I10
3103 G6	7090-B I5	I133 B13
3104 H5	7090-C G5	I134 B13
3105 H5	7100-A G8	I135 I2
3106 I5	7100-B E8	I137 I8
3107 I6	7100-C F8	I138 H8
3108 I5	7102 E7	I139 H6
3109 I5	7103 G7	I140 H7
3110 I5	7104 I8	I141 E6
3111 I6	7105 I8	I142 E7
3112 F1	7107 H9	I143 B7
3113 F2	7110 C7	I144 B10
3114 C5	7111 C8	I145 C8
3115 G2	7112 C8	I146 C10
3116 H1	7113 F2	I147 C9
3117 H2	7115 D10	I148 H8
3118 C6	7117 H2	I149 I8
3119 H2	7121 I2	I150 I8
3120 I1	7129 D13	
3121 I2	7130 F13	
3122 D5	7131 G13	
3123 I3	7135 A7	
3124 D6	7138 A9	
3125 E5	7141 B11	
3126 F6	7145 D11	
3127 H5	7146-A C13	
3128 I6	7146-B E13	
3129 D13	7148 E10	
3130 F13	7151 F11	
3131 H13	7154 G10	
3132 E13	7157 H11	

SCAVIO Panel: Video Selection ADC

SC4 VIDEO-SELECTION -ADC (BASIC AND ENHANCED VERSION)

AD-CONVERTER
+TMDS RECEIVER

A/D
CLAMP
SYNC PROCESSING AND CLOCK GENERATION
AND POWER MANAGMENT
TMDS RECEIVER
REF
DDC-EPROM

TO SC10
FROM SC11
TO SC3
FROM SC2
TO SC10

DVI INPUT SOCKET 0375

7170 AD9887KS

3122 123 6001.7

CL 36532051_017.eps
140703

0375 F14 I160 H10
1170 G2 I161 H11
1171 I1 I165 H13
2170 B1 I166 H14
2171 B1
2172 B1
2173 B1
2174 C1
2175 C1
2176 C1
2177 C1
2178 D1
2179 D1
2180 D1
2181 D1
2182 D1
2183 D1
2184 E1
2185 E1
2186 E1
2187 E1
2188 F1
2189 F1
2190 F1
2191 F1
2192 F1
2193 F1
2195 I2
2196 G2
2197 I2
2198 H2
2199 H2
2205 G4
2206 G5
2207 G6
2208 H7
2209 H7
2210 H7
2211 H7
2212 G11
2217 H11
3200 A10
3203 A9
3204 A9
3205 A10
3206 G7
3207 G7
3208 H7
3209 H8
3210 H8
3211 G10
3212 G10
3213 I9
3214 I9
3215 I9
3216 I9
3217 I11
3218 I11
3219 A11
4200 A12
4201 A10
4202 A12
4203 A11
4215 I11
4216 I11
5196 G2
5197 I1
5198 H2
5199 H2
5210 H13
5214 H10
6200 C12
6201 D12
6202 D12
6203 E12
6204 C13
6205 D13
6206 D13
6207 E13
6208 H13
6209 I13
6210 H13
6214 H10
7170 B2
7175 I2
7215 I10
F162 I2
F170 F12
F171 F12
F172 G12
F173 G12
F174 G12
F175 G12
F176 H12
F177 H12
F178 I14
F180 I12
F181 I12
F196 G2
F197 I1
F198 H2
F199 H2
F201 B10
F202 G3
F203 G3
F210 H6
F211 H7
F216 I10
I151 G11
I152 G8
I153 G7
I154 G10
I155 G5
I156 G6
I157 G6
I158 H7
I159 H8

SCAVIO Panel: Video Selection Decoder

SC5 VIDEO-SELECTION-DECODER (ENHANCED VERSION ONLY)

TO 3D COMB FILTER

VIDEO-DECODER

DE-INTERLACER

TO SC10

FROM SC3

FROM SC9

SVHS

3122 123 6001.7

CL 36532051_018.eps 140703

0381 H3
0387 B1
1250 F4
1270 G5
2220 I6
2221 H6
2222 I6
2223 H6
2224 I6
2225 C2
2226 C2
2228 H5
2230 A5
2231 A5
2232 A6
2240 A6
2247 A6
2248 A7
2249 A7
2250 A7
2252 F4
2253 F4
2254 F5
2260 F2
2261 F3
2262 F2
2263 F3
2264 F2
2265 F3
2266 G2
2267 G3
2268 G2
2269 G3
2270 G2
2274 G1
2275 G1
2276 G1
2277 H3
2278 H4
2279 H4
2280 B11
2281 B11
2282 B11
2283 B11
2284 B12
2285 B12
2286 B12
2287 B12
2288 B12
3220 B1
3225 C3
3250 B8
3251 B8
3260 F3
3261 F6
3262 E8
3263 E8
3271 G3
3274 H1
3275 H2
3276 H2
3277 H3
3278 H4
3279 H4
3284 F9
3285 F10
3286-A D13
3286-B C13
3286-C C13
3289-A D13
3289-B D13
3289-C D13
3289-D D13
3290-A D13
3290-B E13
3290-C E13
3290-D E13
3291-A E13
3291-B E13
3291-C E13
3291-D F13
3292-A F13
3292-B F13
3292-C F13
3292-D F13
3293 F13
4220 C1
4250 G4
5220 I5
5221 H5
5222 I5
5223 H5
5224 I5
5226 F5
5228 H5
6274 I1
6276 I2
6277 I2
6278 I2
7225 C3
7280 C10
F220 I6
F221 H6
F222 I6
F223 H6
F224 I6
F225 B1
F226 B1
F227 B1
F228 B1
F229 C1
F230 C1
F231 C1
F232 C1
F233 C1
F234 H3
F235 I2
F236 I2
F237 H6
F240 C9
F241 C9
F242 D9
F245 C14
F246 C14
F247 D14
F249 F13
F250 B7
F251 B7
F260 E2
F261 E6
F262 E6
F263 E6
F264 E6
F265 F6
I200 I2
I201 H4
I202 H4
I203 F5
I204 H7
I205 F3
I206 E8
I207 F5

SCAVIO Panel: VGA Input

SC6

VGA INPUT
(BASIC AND ENHANCED VERSION)

TO 0318 VGA

TO SC7 8 1Ø

FROM SC 1Ø 11

TO SC8

TO SC7

RS232 DOWN-CONVERTER

4:1 SWITCH

4:1 SWITCH

VGA OUTPUT BUFFERS

1 SHOT

1 SHOT

VGA PANEL CONNECTOR

RS232 INPUT OUTPUT 0376

3122 123 6001.7

CL 36532051_019.eps
140703

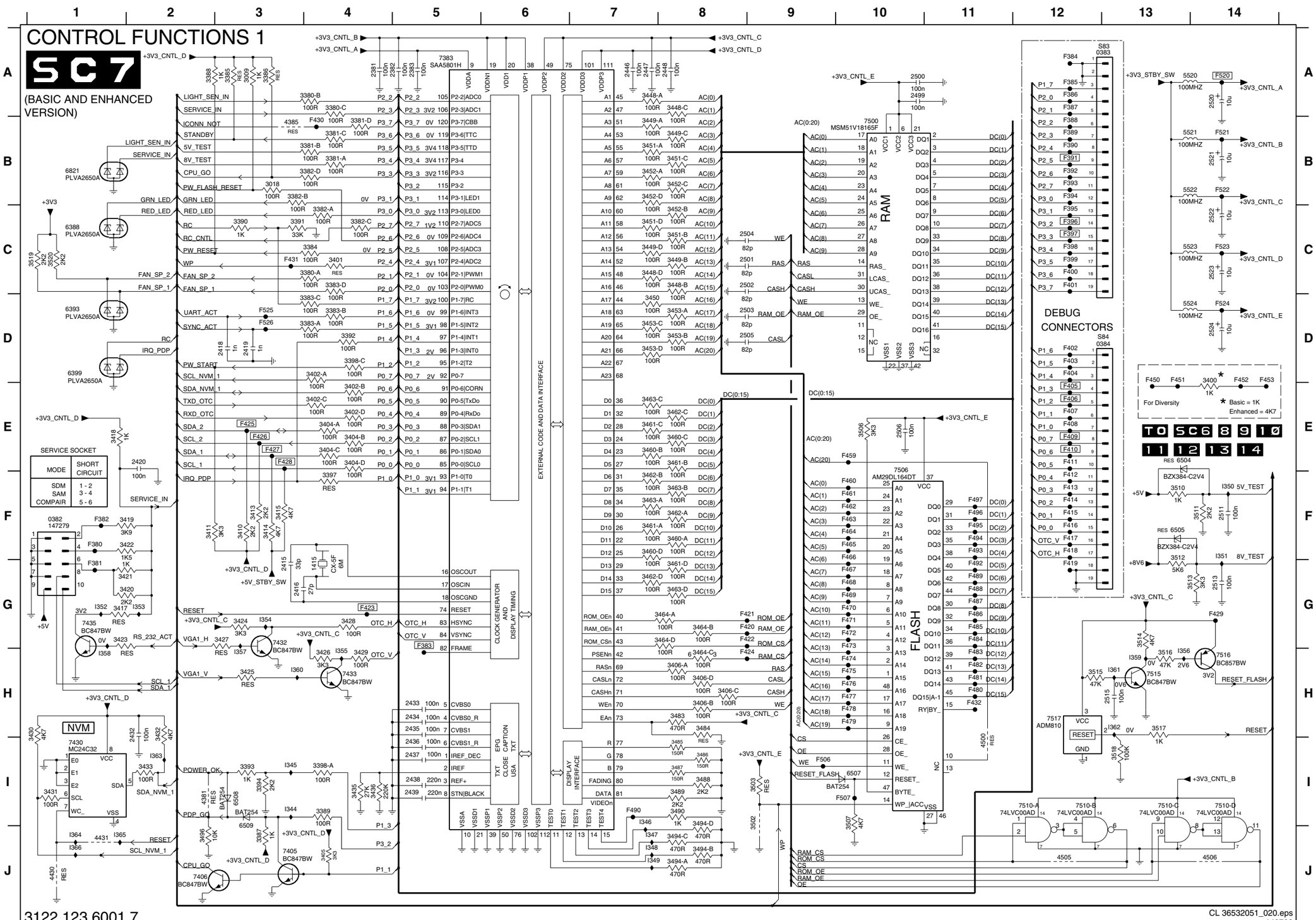
0318 C1	3901 D7	F317 G2
0376 B14	3902 E6	F318 G2
2300 B1	3903 G6	F319 H2
2301 B2	3904 I6	F320 C12
2302 B2	3905 F4	F321 C14
2304 B4	3906 G4	F322 C13
2305 B3	3907 I4	F323 H2
2306 D3	3908 B5	F324 G2
2308 E4	3909 H10	F325 A4
2310 A4	3910 A4	F326 B5
2311 E6	3911 A4	F327 C14
2318 G4	3912 A5	F328 C14
2328 I4	3913 C9	F329 C14
2335 H10	3914 C7	F330 C14
2336 H2	3915 D7	F331 D14
2337 I2	3917 B4	I218 C7
2338 J1	3918 J10	I219 E8
2340 B8	3919 I11	I220 A3
2341 C6	3920 G10	I221 A12
2343 C10	3921 G11	I222 B12
2345 D6	3922 D8	I223 B11
2351 C11	3923 D5	I224 B4
2352 D11	3924 D14	I225 B10
2353 B12	3925 D14	I226 B9
2354 B12	3926 D14	I227 B11
2355 D12	3927 E14	I228 B8
2356 D12	3928 E14	I229 C9
2365 F12	4008 E8	I230 C6
2370 G10	4011 A8	I231 C7
2372 G12	4315 E7	I232 C6
2375 H12	4316 D5	I233 C12
2376 I12	4325 G7	I234 C13
3294 D6	4335 I7	I235 C13
3295 D6	4898 C5	I236 D9
3296 D7	5300 B1	I237 D10
3297 F6	5302 B2	I238 D8
3298 H6	5350 B12	I239 D6
3299 J6	5352 B11	I240 D7
3300 F6	6302 B1	I241 D6
3301 H6	6310 A3	I242 E7
3302 H7	6311 B4	I243 E4
3303 H8	6315 F13	I244 E3
3304 G8	6316 G13	I245 E10
3305 I2	6317 F13	I246 E13
3306 J6	6318 G13	I247 E4
3307 C6	6319 F13	I248 E5
3308 E3	6320 G13	I249 E10
3309 E4	6321 F14	I250 F6
3310 F4	6322 G14	I251 F7
3311 E5	6323 F14	I252 F9
3312 F5	6324 G14	I253 F6
3313 F5	6353 A12	I254 F5
3314 F6	6354 C12	I255 F7
3315 E6	6355 C13	I256 F11
3316 H6	6356 D12	I257 F11
3317 D6	6357 D13	I258 F5
3318 G3	6365 F12	I259 G7
3319 G4	6366 F12	I260 G4
3320 H4	6378 I10	I261 G3
3321 G5	6379 I10	I262 G4
3322 H5	6380 C7	I263 G5
3323 H5	6381 D12	I264 G10
3324 H6	7303-A B4	I265 G6
3325 G6	7303-B B4	I266 G7
3326 C6	7303-C D4	I267 G6
3327 C6	7303-D C4	I268 H5
3328 I3	7305 G7	I269 H9
3329 I4	7306 H7	I270 H10
3330 I4	7307 G8	I271 H7
3331 I5	7308 E4	I272 H5
3332 I5	7309 F5	I273 H9
3333 J5	7310 A4	I274 H11
3334 J6	7311-A E6	I275 H12
3335 I6	7311-B G6	I276 I7
3336 I2	7311-C I6	I277 I1
3337 I1	7315 C6	I278 I4
3338 I2	7316 C7	I279 I2
3339 J2	7318 G4	I280 I3
3340 C8	7319 H5	I281 I10
3341 B9	7320 I1	I282 I4
3342 B9	7321 J1	I283 I5
3343 B10	7322 I2	I284 I2
3344 B10	7323 I2	I285 I6
3345 A10	7325 D6	I286 I7
3346 D8	7326 D7	I287 I6
3347 E10	7328 I4	I288 I5
3348 C7	7333 J5	I289 I1
3349 C7	7340-A B8	I290 J2
3350 D10	7340-B C8	I291 J7
3351 I8	7341 B9	I292 J9
3352 B11	7343 B10	I293 J10
3353 C12	7352 B11	I294 J5
3354 C12	7356 F7	I295 C6
3355 C12	7357 F7	I296 D5
3356 F6	7358 E8	I297 F13
3357 F7	7360 F10	I298 F13
3358 F8	7362 E11	I299 F13
3359 F8	7364 F11	I300 F14
3360 F9	7365 I7	I301 F14
3361 E10	7366 I7	
3362 E10	7367 I8	
3363 H2	7370-A H13	
3364 F10	7370-B G11	
3365 F12	F300 B2	
3366 E12	F301 B2	
3367 I6	F303 D2	
3368 J7	F304 D2	
3369 I8	F305 D2	
3370 G10	F306 D2	
3371 H10	F307 E2	
3372 D5	F308 E2	
3373 I10	F309 E2	
3374 H11	F310 E2	
3375 H12	F311 F2	
3376 I12	F312 F2	
3377 I12	F313 F2	
3378 J10	F314 G2	
3379 J10	F315 G2	
3900 I1	F316 G2	

SCAVIO Panel: Control Functions 1

CONTROL FUNCTIONS 1

SC7

(BASIC AND ENHANCED VERSION)



0382 F1	3452-D B7	F415 F12
0383 A12	3453-A D8	F416 F12
0384 D12	3453-B D8	F417 F12
1415 G4	3453-C D7	F418 F12
2381 A4	3453-D D7	F419 G12
2382 A5	3460-A F8	F420 G9
2383 A5	3460-B E7	F421 G9
2415 G3	3460-C E8	F422 G9
2416 G3	3460-D F7	F423 G4
2418 D3	3461-A F7	F424 H9
2419 D3	3461-B E8	F425 E3
2420 E2	3461-C E7	F426 E3
2432 H2	3461-D G8	F427 E3
2433 H5	3462-A F8	F428 E3
2434 H5	3462-B F7	F429 G14
2435 H5	3462-C E8	F430 B4
2436 I5	3462-D G7	F431 C3
2437 I5	3463-A F7	F432 H11
2438 I5	3463-B F8	F450 D13
2439 I5	3463-C E7	F451 D13
2446 A7	3463-D G8	F452 D14
2447 A7	3464-A G8	F453 D14
2448 A8	3464-B G8	F459 E10
2499 A10	3464-C H8	F460 F10
2500 A10	3464-D G8	F461 F10
2501 C8	3483 H8	F462 F10
2502 C8	3484 H8	F463 F10
2503 D8	3485 I8	F464 F10
2504 C8	3486 I8	F465 F10
2505 D8	3487 I8	F466 F10
2506 E10	3488 I8	F467 G10
2511 F14	3489 I8	F468 G10
2513 G14	3490 I8	F469 G10
2515 H13	3494-A J8	F470 G10
2520 A14	3494-B J8	F471 G10
2521 B14	3494-C J8	F472 G10
2522 C14	3494-D I8	F473 G10
2523 C14	3496 J2	F474 H10
2524 D14	3502 I9	F475 H10
3009 A3	3503 I9	F476 H10
3018 B3	3506 E10	F477 H10
3380-A C4	3507 I10	F478 H10
3380-B A4	3510 F13	F479 H10
3380-C A4	3511 F14	F480 H11
3381-A B4	3512 F13	F481 H11
3381-B B4	3513 G14	F482 H11
3381-C B4	3514 G13	F483 H11
3381-D B4	3515 H12	F484 G11
3382-A C4	3516 H13	F485 G11
3382-B B3	3517 H13	F486 G11
3382-C C4	3518 I13	F487 G11
3382-D B4	3519 C1	F488 G11
3383-A D4	3520 C1	F489 G11
3383-B D4	4381 I2	F490 I7
3383-C D4	4385 B3	F492 G11
3383-D D4	4430 J1	F493 F11
3384 C4	4431 J1	F494 F11
3385 A3	4500 I11	F495 F11
3386 A3	4505 J12	F496 F11
3387 J3	4506 J14	F497 F11
3388 A2	5520 A13	F506 I9
3389 I4	5521 B13	F507 I10
3390 C3	5522 B13	F520 A14
3391 C3	5523 C13	F521 B14
3392 D4	5524 D13	F522 B14
3393 I3	6388 C1	F523 C14
3394 I3	6393 D1	F524 D14
3397 F4	6399 D1	F525 D3
3398-A I4	6504 E13	F526 D3
3398-C D4	6505 F13	I344 I3
3400 D14	6507 I10	I345 I3
3401 C4	6508 I3	I346 I7
3402-A D4	6509 J3	I347 J7
3402-B E4	6821 B1	I348 J7
3402-C E4	7383 A5	I349 J7
3402-D E4	7405 J3	I350 F14
3404-A E4	7406 J2	I351 F14
3404-B E4	7430 I1	I352 G1
3404-C E4	7432 G3	I353 G2
3404-D E4	7433 H4	I354 G3
3405 J4	7435 G1	I355 H4
3406-A H8	7500 B10	I356 H13
3406-B H8	7506 F10	I357 H3
3406-C H8	7510-A I12	I358 H1
3406-D H8	7510-B I12	I359 H13
3410 F3	7510-C I13	I360 H3
3411 F2	7510-D I14	I361 H13
3413 F3	7515 H13	I362 H13
3414 F3	7516 H14	I363 I2
3415 F3	7517 H12	I364 J1
3417 G1	F380 F1	I365 J1
3418 E1	F381 G1	I366 J1
3419 F2	F382 F1	
3420 G2	F383 G5	
3421 G1	F384 A12	
3422 F2	F385 A12	
3423 G1	F386 A12	
3424 G3	F387 A12	
3425 H3	F388 B12	
3426 H4	F389 B12	
3427 G3	F390 B12	
3428 G4	F391 B12	
3429 H4	F392 B12	
3430 H1	F393 B12	
3431 I1	F394 B12	
3432 H2	F395 C12	
3433 I2	F396 C12	
3435 I4	F397 C12	
3436 I4	F398 C12	
3448-A A7	F399 C12	
3448-B C8	F400 C12	
3448-C A8	F401 C12	
3448-D C7	F402 D12	
3449-A B7	F403 D12	
3449-B C8	F404 D12	
3449-C B8	F405 E12	
3449-D C7	F406 E12	
3450 D7	F407 E12	
3451-A B7	F408 E12	
3451-B C8	F409 E12	
3451-C B8	F410 E12	
3451-D C7	F411 E12	
3452-A B7	F412 F12	
3452-B C8	F413 F12	
3452-C B8	F414 F12	

3122 123 6001.7

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SCAVIO Panel: Control Functions 2

SC8 CONTROL FUNCTIONS 2
(BASIC AND ENHANCED VERSION)

TO 0320 LD LED-PANEL DISPLAY OR 1330 EMC EMC FILTER PANEL

TO 0305 P7 POWER SUPPLY

TO 0319 P3 POWER SUPPLY

EXTERNAL ADC

I/O EXPANDER

ICONN SWITCH

TO SC3 6 7 9 10 12 13 14

3122 123 6001.7

CL 36532051_021.eps
140703

SCAVIO Panel: Scaler Clock Generator

SC9 SCALER-CLOCK-GENERATOR
(BASIC AND ENHANCED VERSION)

CLOCK GENERATOR

TO SC5 {VIDCLK}

TO SC8 SC14

TO SC7

TO SC10 14

TO SC10

PW-NVM

S86 0386 FTR

DEBUG CONNECTOR PW

3122 123 6001.7

CL 36532051_022.eps 140703

0386 C9 I436 H1
1570 C2
1575 G6
2570 D2
2572 C4
2573 C4
2574 C6
2581 H2
2583 F5
2584 F1
3016 D3
3571 D2
3575 E3
3580 F3
3581 G3
3582 F5
3583 F5
3590 D10
3591 D10
3592 E10
3593 E10
3594 H2
4572 C6
4574 D7
4581 G3
4582 G4
4591 C10
4592 G1
4593 E2
5570 C2
5572 B3
5574 B5
6500 G1
6501 G1
6502 G1
6503 H1
7570 C3
7571-A G2
7571-B F2
7571-C E3
7574-A C6
7574-B D6
7574-C D6
7574-D E6
7580 F4
F563 E7
F564 E7
F565 D7
F566 B7
F567 G3
F568 G3
F569 G5
F570 C8
F571 C8
F572 C8
F573 C8
F574 C8
F575 D8
F576 D8
F577 D8
F578 D8
F579 D8
F580 D8
F581 E8
F582 E8
F583 E8
F584 E8
F585 F8
F586 F8
F587 F8
F588 F8
F589 F8
F590 F8
F591 C10
F592 C10
F593 C10
F594 C10
F595 C10
F596 D10
F597 D9
F598 D9
F599 D10
F600 D10
F601 D10
F602 D10
F603 E10
F604 E10
F605 E10
F606 E10
F607 E10
F608 E10
F609 F10
F610 F10
F611 F10
F612 F10
F613 F10
I430 C3
I431 D3
I432 B4
I433 D2
I435 H1

SCAVIO Panel: PW164 Scaler and Memory

SC10

SCALER PW164 + MEMORY (BASIC AND ENHANCED VERSION)

TO SC2 FROM SC9 FROM SC5 FROM SC4 FROM SC15 FROMSC3 SC7 TO SC11 TO SC7 TO SC6 TO SC7 9 TO SC11 12

PW164

I/O PORTS
16-BIT MICRO-PROCESSOR
PROCESSOR ROM/RAM INTERFACE
INTERRUPT CONTROLLER
WATCHDOG AND TIMERS
UART
IR DECODERS
MICROPROCESSOR BUS
TEST CONTROL
YUV TO RGB
VIDEO PORT PIXEL PROCESSING
GRAPHICS PORT PIXEL PROCESSING
OSD
PROCESSOR MEMORY INTERFACE
SDRAM FRAME BUFFER
MEMORY CONTROLLER
MEMORY IN BUS
MEMORY OUT BUS
INTERNAL REGISTER INTERFACE
REGISTER BUS
VERTICAL IMAGE SCALAR
HORIZ. IMAGE SCALAR
DISPLAY FIFO
OSD AND GAIN
COLOR LOOKUP TABLES
COLOR SPACE EXPANDER
ON SCREEN DISPLAY
SYNC DECODER AND TIMER
AUTOMATIC IMAGE OPTIMIZER
CLOCK GENERATOR
DISPLAY TIMING GENERATOR
SRAM
FLASH

3122 123 6001.7

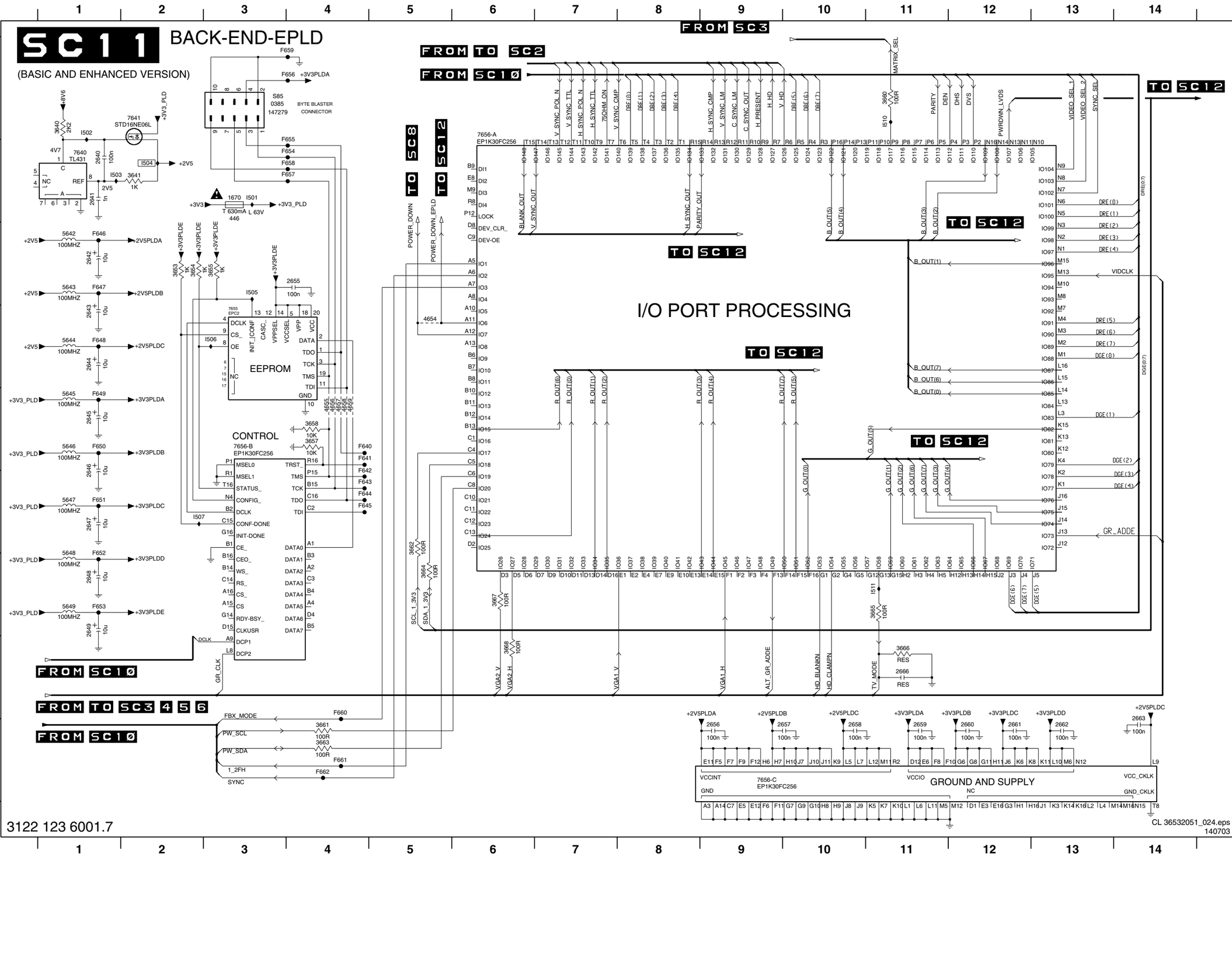
CL 36532051_023.eps
140703

2600 I1
2601 I2
2602 I2
2603 I2
2604 I2
2605 I3
2606 I3
2607 I3
2608 I4
2609 I4
2610 I4
2611 I4
2612 I5
2613 I5
2614 I5
2615 I6
2616 I8
2617 I9
2618 I9
2619 I9
2620 I9
2621 I10
2622 I10
2623 I10
2624 I11
2625 I11
2628 A12
2629 E12
2630 E12
3600 A2
3601 A2
3602 A3
3603 A3
3604 A3
3605 A2
3606 A4
3607 A4
3608 A4
3609 A4
3610 H11
3611 A3
3612 A4
3613 A5
3615 A10
3616 A11
3617 A11
3620 B11
3621 B11
3622 B11
3623 B11
3625 D1
3626 D1
3627 D1
3628 A14
3630 E13
3631 E13
3632 I14
3633 I14
3634 I14
3636 H14
3637 D13
3638 A9
3639 A9
4605 B2
4632 I14
5628 A12
5630 E12
6630 E13
7605 A3
7628 A13
7630 E13
F614 H13
F615 A2
F616 A2
F617 D12
F618 G2
F619 G2
F620 H2
F621 H2
F622 D12
F623 C11
F624 C11
F625 C11
F626 C12
F627 A4
F628 A4
F629 A13
F630 A3
F631 A3
F632 I13
F633 H2
F634 H11
F635 A4
F636 A4
F637 H11
F638 I11
F639 H11
I470 A9
I471 A9
I475 D13
I480 E13
I481 E13
I482 E14
I485 H13
I486 I13

SCAVIO Panel: Back-End EPLD

SC11 BACK-END-EPLD

(BASIC AND ENHANCED VERSION)



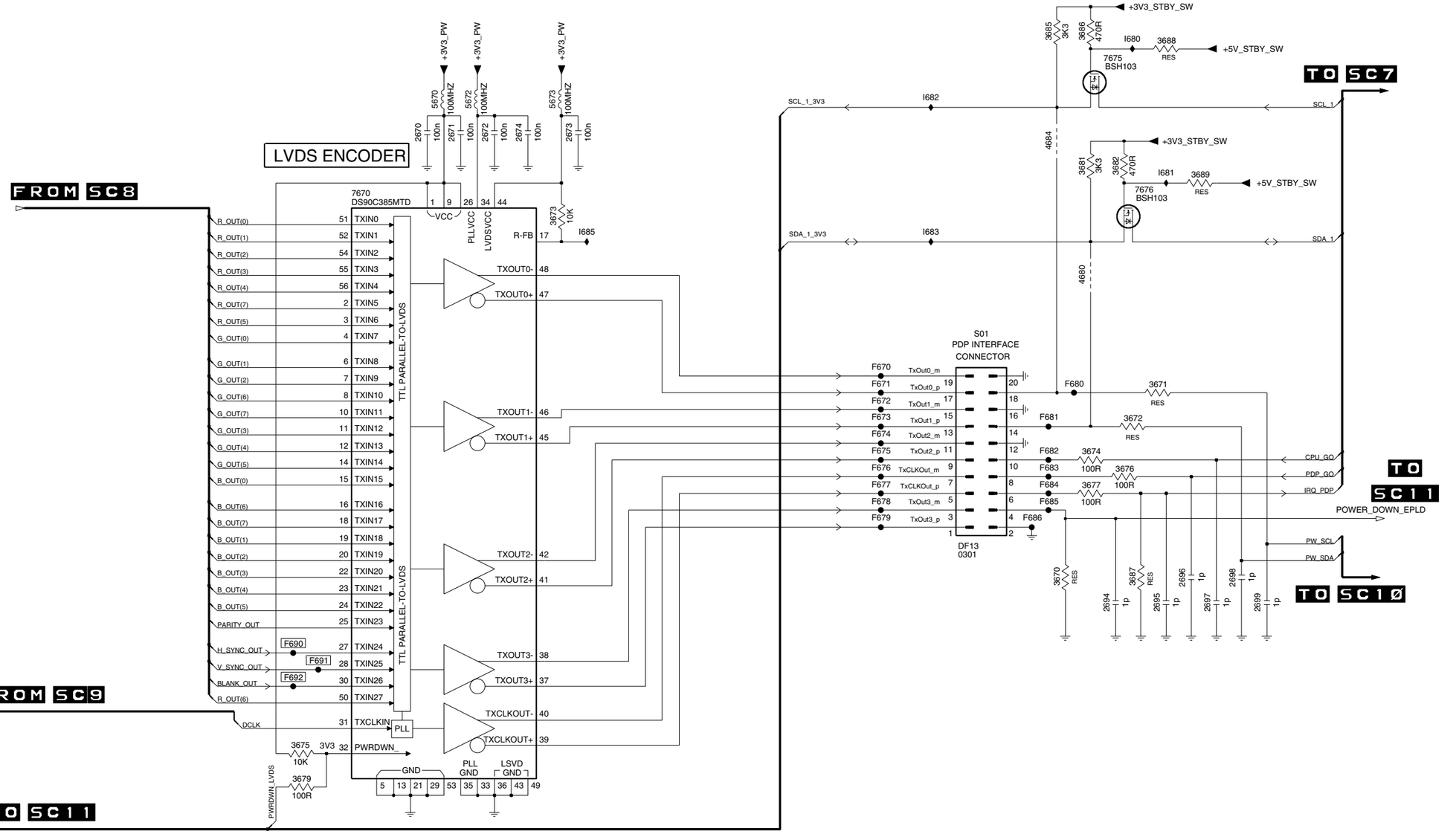
0385 A3
1670 B3
2640 B1
2641 B1
2642 C1
2643 D1
2644 D1
2645 E1
2646 F1
2647 F1
2648 G1
2649 G1
2655 C4
2656 I9
2657 I10
2658 I10
2659 I11
2660 I12
2661 I12
2662 I13
2663 I14
2666 H11
3640 A1
3641 B2
3653 C2
3654 C2
3655 C3
3657 E4
3658 E4
3660 A11
3661 I4
3662 F5
3663 I4
3664 G5
3665 G11
3666 H11
3667 G6
3668 H6
4654 D5
4655 E4
4656 E4
4657 E4
4658 E4
4659 E4
5642 C1
5643 C1
5644 D1
5645 E1
5646 E1
5647 F1
5648 G1
5649 G1
7640 B1
7641 A2
7655 D3
7656-A A6
7656-B E3
7656-C I9
F640 E4
F641 E4
F642 F4
F643 F4
F644 F4
F645 F4
F646 C1
F647 C1
F648 D1
F649 E1
F650 E1
F651 F1
F652 G1
F653 G1
F654 B4
F655 B4
F656 A4
F657 B4
F658 B4
F659 A4
F660 H4
F661 I4
F662 I4
I501 B3
I502 A1
I503 B1
I504 B2
I505 C3
I506 D3
I507 F2
I510 A11
I511 G11

3122 123 6001.7

CL 36532051_024.eps
140703

SCAVIO Panel: Back-End LVDS Output

SC12 BACK-END-LVDS-OUTPUT
(BASIC AND ENHANCED VERSION)



3122 123 6001.7

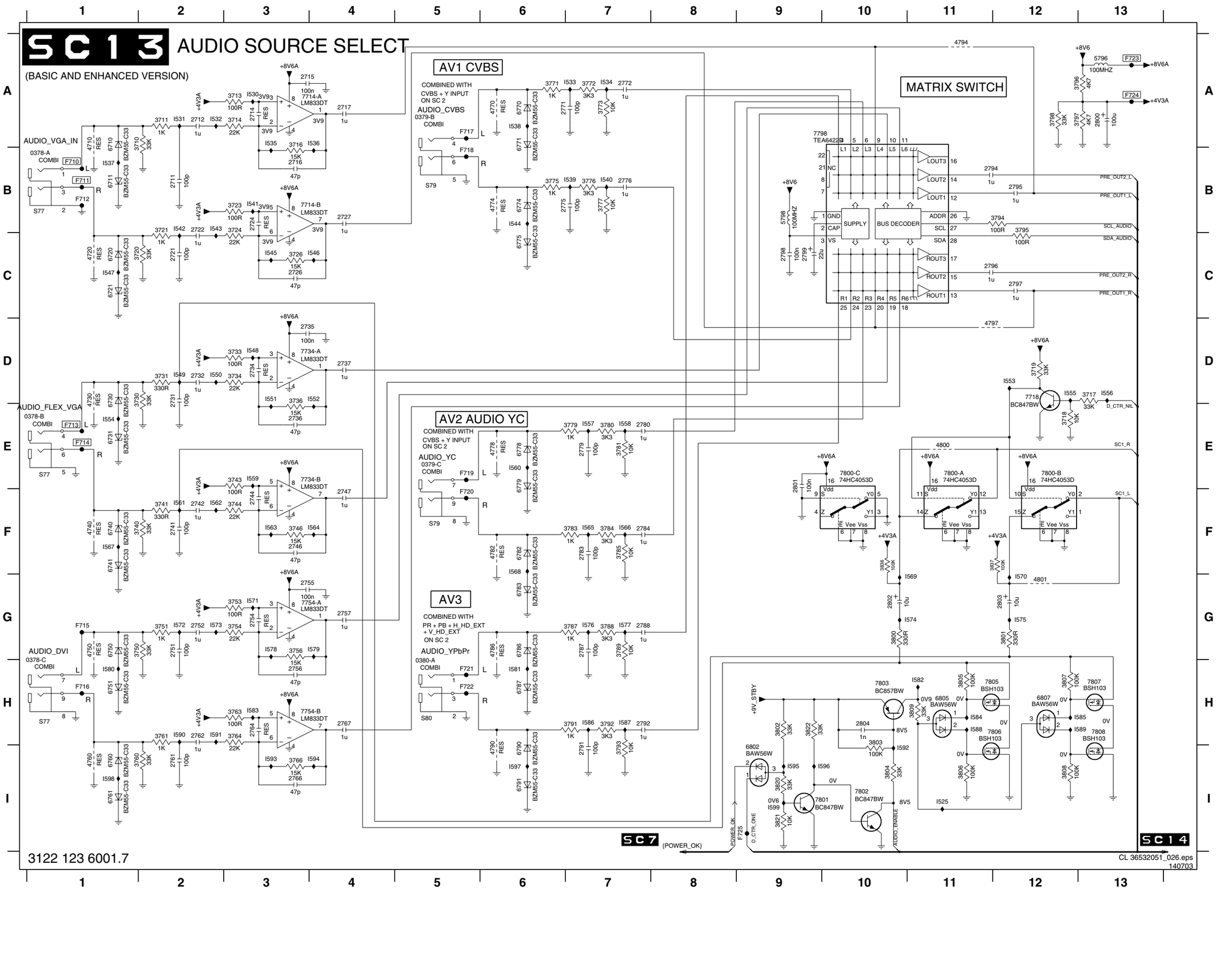
CL 36532051_025.eps
140703

0301 E9
2670 B5
2671 B5
2672 B5
2673 B6
2674 B6
2694 F11
2695 F11
2696 F11
2697 F11
2698 F12
2699 F12
3670 F10
3671 D11
3672 D11
3673 C6
3674 E10
3675 G4
3676 E11
3677 E10
3679 G4
3681 B10
3682 B11
3685 A10
3686 A10
3687 F11
3688 A11
3689 B11
4680 C10
4684 B10
5670 B5
5672 B5
5673 B6
7670 B4
7675 A11
7676 B11
F670 D9
F671 D9
F672 D9
F673 D9
F674 D9
F675 E9
F676 E9
F677 E9
F678 E9
F679 E9
F680 D10
F681 D10
F682 E10
F683 E10
F684 E10
F685 E10
F686 E10
F690 F4
F691 F4
F692 G4
I680 A11
I681 B11
I682 B9
I683 C9
I685 C6

SCAVIO Panel: Audio Source Select

SC13 AUDIO SOURCE SELECT

(BASIC AND ENHANCED VERSION)



3122 123 6001.7

CL 36532051_026.eps
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0378-A B1	3800 G10	I553 D12
0378-B E1	3801 G12	I554 E1
0378-C G1	3802 H9	I555 D12
0379-B A5	3803 H10	I556 D13
0379-C E5	3804 I10	I557 E7
0380-A G5	3805 H11	I558 E7
2711 B2	3806 I11	I559 E3
2712 A2	3807 H12	I560 E6
2714 A3	3808 I12	I561 F2
2715 A3	3809 H11	I562 F2
2716 B3	3820 I9	I563 F3
2717 A4	3821 I9	I564 F4
2721 C2	3822 H9	I565 F7
2722 B2	3836 F10	I566 F7
2724 B3	3837 F12	I567 F1
2726 C3	4710 A1	I568 F6
2727 B4	4720 C1	I569 G11
2731 D2	4730 D1	I570 G12
2732 D2	4740 F1	I571 G3
2734 D3	4750 G1	I572 G2
2735 D3	4760 I1	I573 G2
2736 E3	4770 A6	I574 G11
2737 D4	4774 B6	I575 G12
2741 F2	4778 E6	I576 G7
2742 F2	4782 F6	I577 G7
2744 F3	4786 G6	I578 G3
2746 F3	4790 I6	I579 G4
2747 F4	4794 A11	I580 H1
2751 G2	4797 D11	I581 H6
2752 G2	4800 E11	I582 H11
2754 G3	4801 G12	I583 H3
2755 G3	5796 A13	I584 H11
2756 H3	5798 B9	I585 H13
2757 G4	6710 A1	I586 H7
2761 I2	6711 B1	I587 H7
2762 H2	6720 C1	I588 H11
2764 H3	6721 C1	I589 H13
2766 I3	6730 D1	I590 H2
2767 H4	6731 E1	I591 H2
2771 A6	6740 F1	I592 I10
2772 A7	6741 F1	I593 I3
2775 B6	6750 G1	I594 I4
2776 B7	6751 H1	I595 I9
2779 E7	6760 I1	I596 I10
2780 E7	6761 I1	I597 I6
2783 F7	6770 A6	I598 I1
2784 F7	6771 A6	I599 I9
2787 G7	6774 B6	
2788 G7	6775 C6	
2791 I7	6778 E6	
2792 H7	6779 E6	
2794 B11	6782 F6	
2795 B12	6783 G6	
2796 C11	6786 G6	
2797 C12	6787 H6	
2798 C9	6790 I6	
2799 C9	6791 I6	
2800 A13	6802 I9	
2801 E9	6805 H11	
2802 G10	6807 H12	
2803 G12	7714-A A3	
2804 H10	7714-B B3	
3710 A2	7718 D12	
3711 A2	7734-A D3	
3713 A3	7734-B E3	
3714 A3	7754-A G3	
3716 A3	7754-B H3	
3717 D13	7798 A9	
3718 E12	7800-A E11	
3719 D12	7800-B E12	
3720 C2	7800-C E10	
3721 B2	7801 I9	
3723 B3	7802 I10	
3724 B3	7803 H10	
3726 C3	7805 H11	
3730 D2	7806 H12	
3731 D2	7807 H13	
3733 D3	7808 H13	
3734 D3	F710 B1	
3736 D3	F711 B1	
3740 F2	F712 B1	
3741 F2	F713 E1	
3743 E3	F714 E1	
3744 F3	F715 G1	
3746 F3	F716 H1	
3750 G2	F717 A5	
3751 G2	F718 B5	
3753 G3	F719 E5	
3754 G3	F720 F5	
3756 G3	F721 H5	
3760 I2	F722 H5	
3761 H2	F723 A13	
3763 H3	F724 A13	
3764 H3	F725 I9	
3766 I3	I525 I11	
3771 A6	I530 A3	
3772 A7	I531 A2	
3773 A7	I532 A2	
3775 B6	I533 A7	
3776 B7	I534 A7	
3777 B7	I535 A3	
3779 E7	I536 A4	
3780 E7	I537 B1	
3781 E7	I538 A6	
3783 F7	I539 B7	
3784 F7	I540 B7	
3785 F7	I541 B3	
3787 G7	I542 B2	
3788 G7	I543 B2	
3789 G7	I544 B6	
3791 H7	I545 C3	
3792 H7	I546 C4	
3793 I7	I547 C1	
3794 B12	I548 D3	
3795 B12	I549 D2	
3796 A13	I550 D2	
3797 A13	I551 D3	
3798 A12	I552 D4	

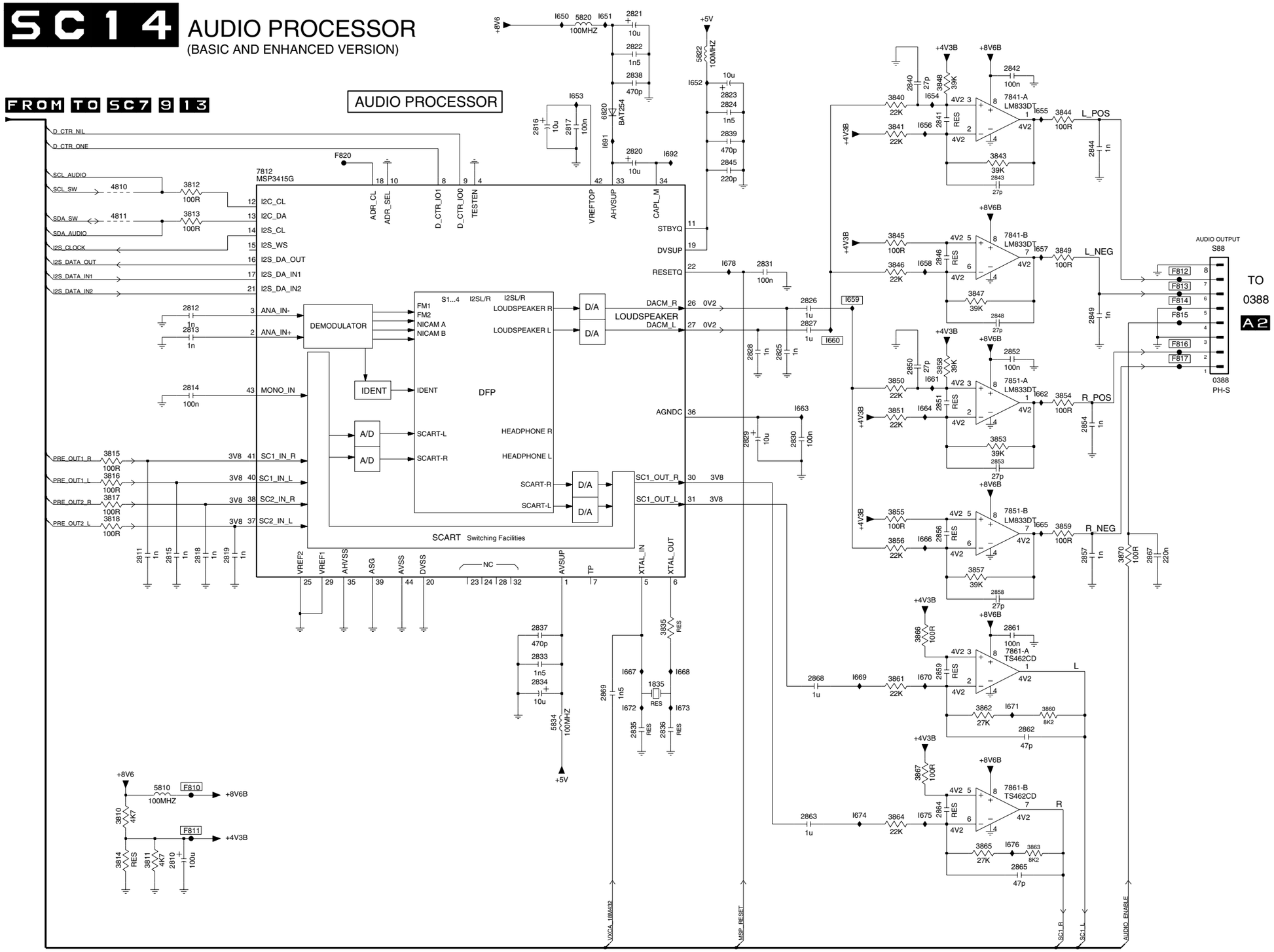
SCAVIO Panel: Audio Processor

SC14 AUDIO PROCESSOR

(BASIC AND ENHANCED VERSION)

FROM TO SC7 9 13

AUDIO PROCESSOR



3122 123 6001.7

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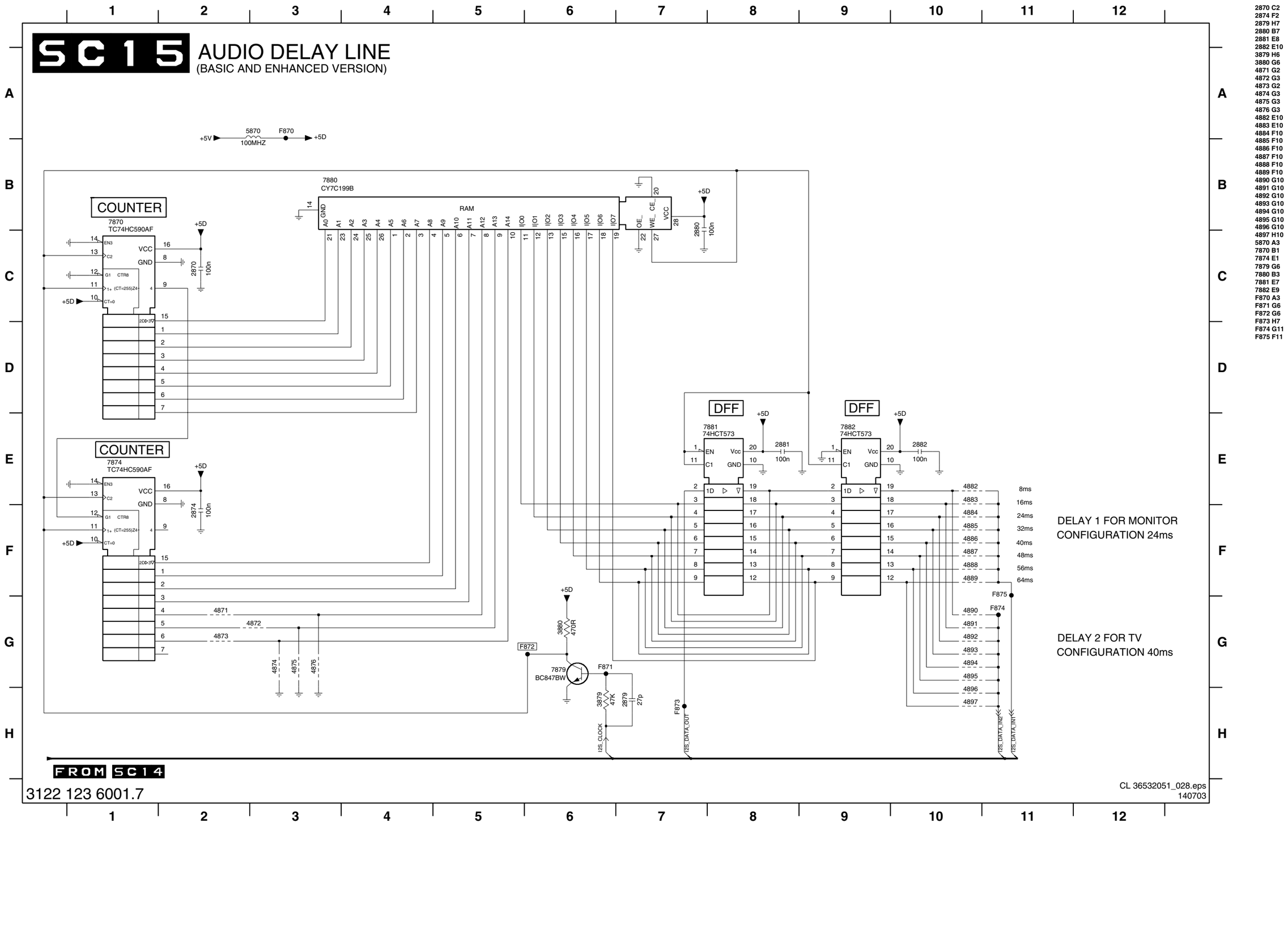
0388 D13
1835 G7
2810 I2
2811 F2
2812 C3
2813 D3
2814 D3
2815 F2
2816 B6
2817 B6
2818 F3
2819 F3
2820 B7
2821 A7
2822 A7
2823 A8
2824 A8
2825 D8
2826 C9
2827 C9
2828 D8
2829 E8
2830 E9
2831 C8
2833 G6
2834 G6
2835 G7
2836 G7
2837 F6
2838 A7
2839 B8
2840 A10
2841 A10
2842 A11
2843 B11
2844 B11
2845 B8
2846 C10
2848 C11
2849 C11
2850 D10
2851 D10
2852 D11
2853 E11
2854 D11
2856 F10
2857 F11
2858 F11
2859 G10
2861 F11
2862 G11
2863 H9
2864 H10
2865 I11
2867 F12
2868 G9
2869 G7
3810 H2
3811 I2
3812 B3
3813 B3
3814 I2
3815 E2
3816 E2
3817 E2
3818 E2
3835 F7
3840 A10
3841 B10
3843 B11
3844 A11
3845 C10
3846 C10
3847 C10
3848 A10
3849 C11
3850 D10
3851 D10
3853 E11
3854 D11
3855 E10
3856 F10
3857 F10
3858 D10
3859 E11
3860 G11
3861 G10
3862 G10
3863 I11
3864 H10
3865 I10
3866 F10
3867 H10
3870 F12
4810 B2
4811 B2
5810 H2
5820 A6
5822 A8
5834 G6
6820 A7
7812 B3
7841-A A11
7841-B C11
7851-A D11
7851-B E11
7861-A G11
7861-B H11
F810 H3
F811 H3
F812 C12
F813 C12
F814 C12
F815 C12
F816 D12
F817 D12

F820 B4
I650 A6
I651 A7
I652 A8
I653 A6
I654 A10
I655 A11
I656 A10
I657 C11
I658 C10
I659 C9
I660 D9
I661 D10
I662 D11
I663 D9
I664 D10
I665 E11
I666 F10
I667 G7
I668 G7
I669 G9
I670 G10
I671 G11
I672 G7
I673 G7
I674 H9
I675 H10
I676 I11
I678 F6
I691 B7
I692 B7

SCAVIO Panel: Audio Delay Line

SC15 AUDIO DELAY LINE
(BASIC AND ENHANCED VERSION)



2870 C2
2874 F2
2879 H7
2880 B7
2881 E8
2882 E10
3879 H6
3880 G6
4871 G2
4872 G3
4873 G2
4874 G3
4875 G3
4876 G3
4882 E10
4883 E10
4884 F10
4885 F10
4886 F10
4887 F10
4888 F10
4889 F10
4890 G10
4891 G10
4892 G10
4893 G10
4894 G10
4895 G10
4896 G10
4897 H10
5870 A3
7870 B1
7874 E1
7879 G6
7880 B3
7881 E7
7882 E9
F870 A3
F871 G6
F872 G6
F873 H7
F874 G11
F875 F11

3122 123 6001.7

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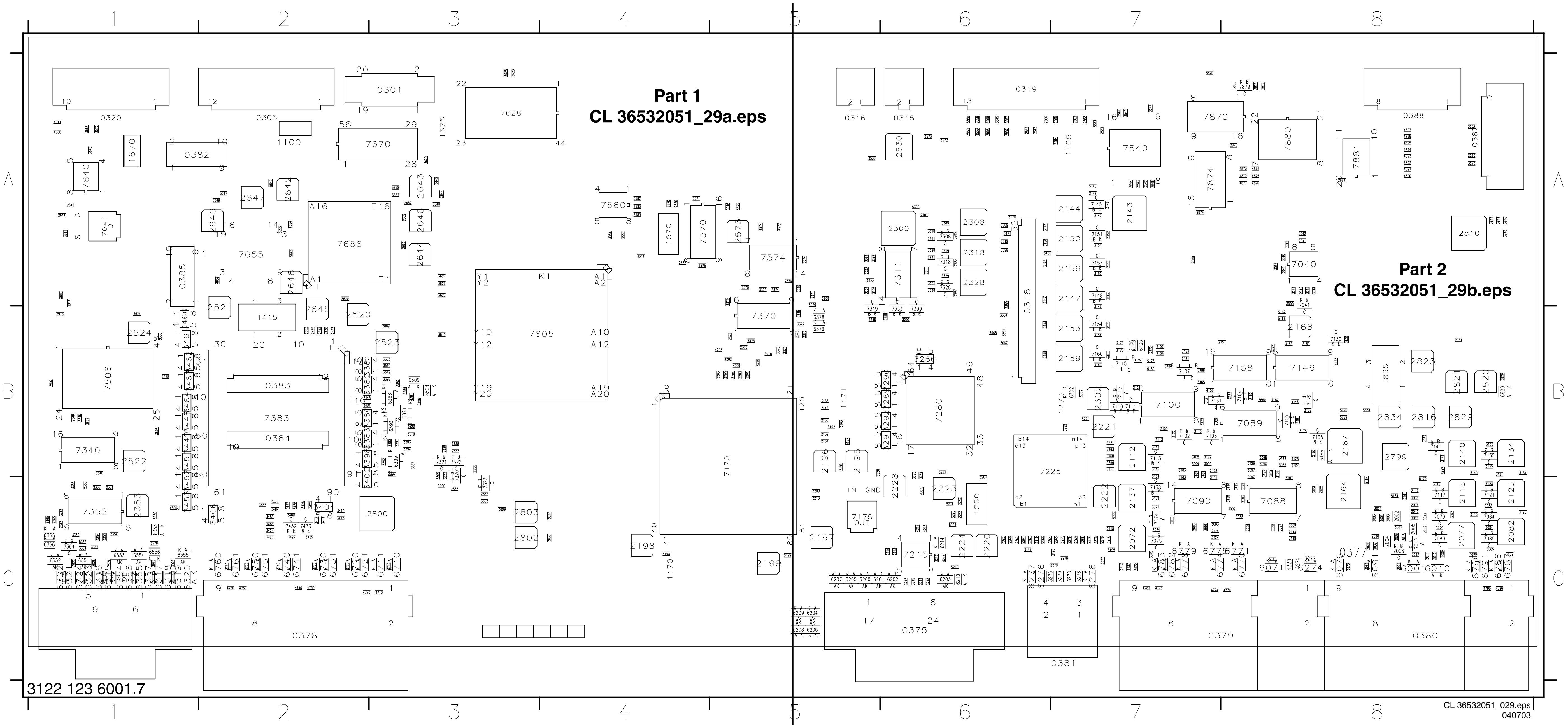
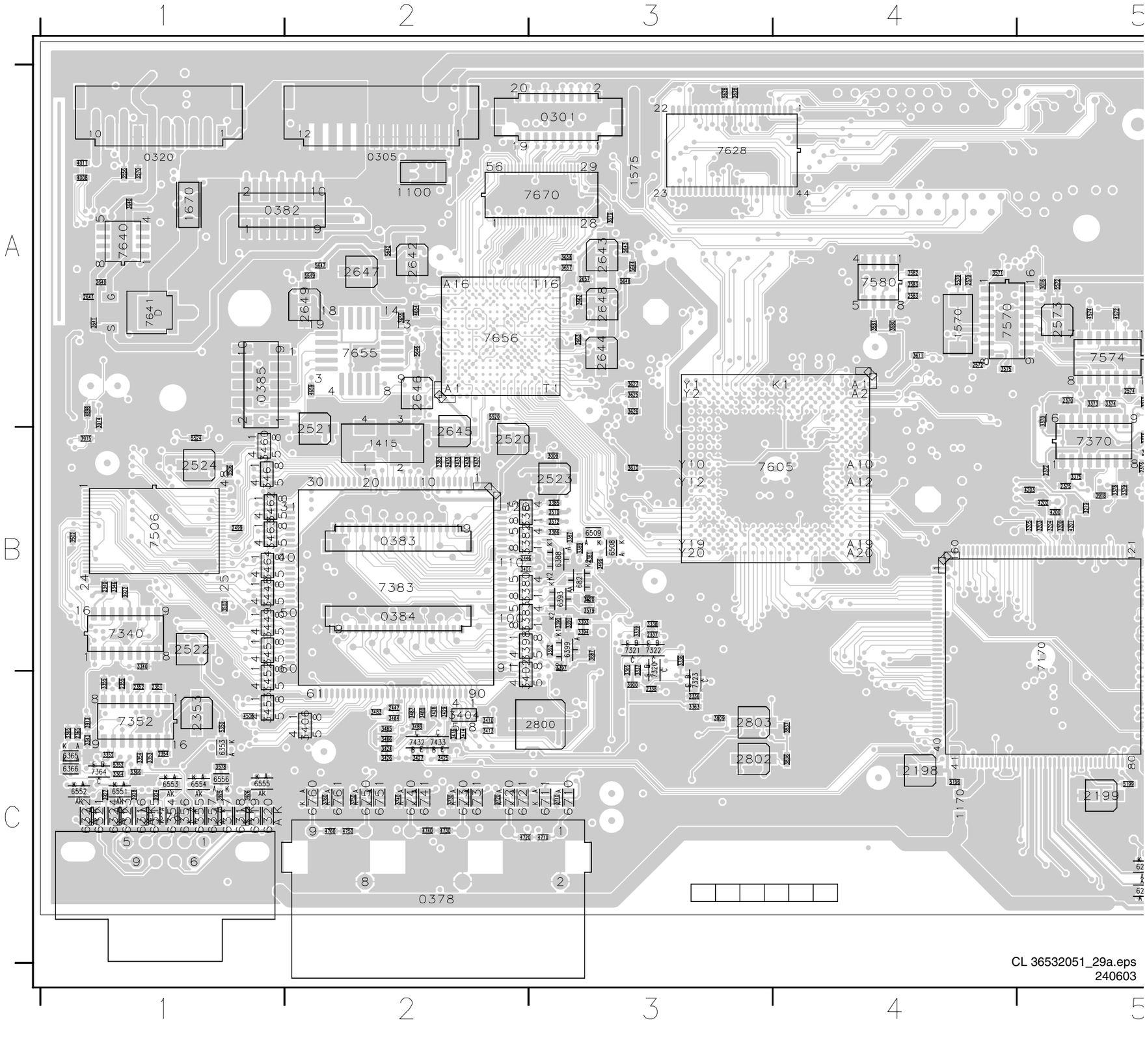
Layout SCAVIO Panel (Overview Top Side)

0301 A3	1575 A3	2107 B7	2150 A7	2228 C6	2328 A6	2522 B1	2645 B2	3004 C8	3078 C8	3105 B8	3133 B5	3161 B7	3200 B5	3284 B6
0305 A2	1670 A1	2108 B7	2151 B5	2252 C6	2335 B5	2523 B3	2646 A2	3005 C8	3079 C8	3106 C8	3134 B8	3162 B5	3203 B5	3285 B6
0315 A6	1835 B8	2109 B7	2152 B5	2253 C6	2336 C3	2524 B1	2647 A2	3006 C8	3080 C8	3107 C8	3135 B8	3163 B8	3204 B5	3286 B6
0316 A5	2002 C8	2110 B7	2153 B7	2254 C6	2337 B3	2530 A6	2648 A3	3008 C8	3081 C8	3108 B7	3136 B8	3164 C8	3205 B5	3289 B6
0318 A6	2003 C8	2111 B8	2156 A7	2260 C6	2338 C3	2541 A7	2649 A2	3009 B3	3082 C8	3109 B7	3137 C7	3165 B7	3209 C5	3290 B6
0319 A6	2004 C8	2112 B7	2157 B8	2261 C6	2340 B1	2543 A6	2657 A3	3010 C8	3083 C8	3110 C8	3138 C7	3166 B5	3210 C5	3291 B6
0320 A1	2005 C8	2113 B7	2158 B5	2262 C6	2343 C1	2544 A6	2662 A3	3011 C8	3084 C8	3111 C7	3139 C7	3170 A6	3213 C6	3292 B6
0375 C6	2008 C8	2114 C8	2159 B7	2263 C6	2351 C1	2557 A6	2663 A3	3012 C8	3085 C8	3112 C7	3140 B8	3171 A6	3214 C6	3293 B6
0376 C1	2012 C8	2115 C7	2161 C8	2264 C6	2352 C1	2558 A6	2799 B8	3013 C8	3086 B8	3113 B7	3141 B8	3172 A6	3215 C6	3297 B6
0378 C2	2014 C8	2116 C8	2164 C8	2265 C7	2353 C1	2559 A6	2800 C3	3014 C8	3087 C8	3114 B8	3142 B8	3173 B7	3216 C6	3298 B5
0379 C7	2015 C8	2117 C8	2165 C8	2266 C6	2354 C1	2560 A6	2802 C3	3015 C8	3088 C8	3115 B7	3144 A6	3174 B7	3217 C6	3299 B6
0380 C8	2021 C8	2118 C7	2166 B8	2267 C6	2355 C1	2562 A7	2803 C3	3016 A5	3089 C8	3116 C8	3145 A7	3175 B7	3218 C6	3304 B6
0381 C7	2030 C8	2119 C6	2167 B8	2268 C7	2365 C1	2563 A7	2810 A8	3040 A8	3090 B7	3117 B8	3146 A7	3176 B7	3219 B5	3305 B3
0382 A1	2040 A8	2120 C8	2168 B8	2269 C7	2370 A5	2564 A7	2816 B8	3041 A8	3091 C7	3118 C8	3147 A6	3177 B7	3220 A8	3306 A5
0383 B2	2041 A8	2123 C7	2195 B5	2270 C7	2372 B5	2565 A7	2820 B8	3042 A8	3092 C8	3119 C8	3148 B7	3178 B8	3250 B7	3308 A6
0384 B2	2042 A8	2124 C7	2196 B5	2274 C7	2375 B5	2566 A6	2821 B8	3043 A8	3093 C7	3120 C8	3149 A7	3179 B7	3251 B7	3309 A6
0385 A1	2060 A7	2127 B8	2197 C5	2275 C7	2376 B5	2570 A4	2823 B8	3044 A8	3094 B8	3121 B8	3150 A6	3180 B8	3260 B7	3310 A6
0387 A8	2072 C7	2128 B7	2198 C4	2276 C7	2383 B2	2572 A4	2829 B8	3045 A8	3095 C8	3122 B7	3151 A7	3181 B8	3261 C6	3311 A6
0388 A8	2077 C8	2134 B8	2199 C5	2277 C7	2433 B2	2573 A5	2831 B8	3050 A8	3096 C8	3123 C8	3152 A7	3182 B8	3262 B7	3316 A5
1100 A2	2082 C8	2137 C7	2217 C6	2278 C7	2435 B2	2574 A5	2834 B8	3051 A8	3097 B8	3124 C7	3153 B6	3183 B7	3263 B7	3318 A6
1105 A7	2088 C8	2140 B8	2220 C6	2279 C7	2437 B2	2583 A4	2870 A8	3071 C8	3098 B8	3125 C8	3154 B7	3184 B7	3271 B7	3319 A6
1170 C4	2089 B7	2142 A7	2221 B7	2300 A6	2438 B2	2628 A3	2874 A7	3072 C7	3099 B7	3126 B8	3155 B7	3186 B7	3274 C8	3320 A6
1171 B5	2090 C7	2143 A7	2222 C7	2301 A6	2446 B2	2640 A1	2879 A8	3073 C7	3100 C8	3127 B8	3156 A6	3188 B7	3275 C6	3321 A6
1250 C6	2097 C8	2144 A7	2223 C6	2302 B7	2447 C2	2641 A1	2881 A8	3074 C7	3101 C7	3128 B8	3157 A7	3189 B8	3276 C7	3323 A5
1270 B7	2103 C7	2145 B8	2224 C6	2308 A6	2499 B1	2642 A2	3001 C8	3075 C7	3102 B7	3129 B8	3158 A7	3193 C7	3277 C8	3324 A5
1415 B2	2105 B7	2146 B5	2225 A8	2311 A6	2520 B2	2643 A3	3002 C8	3076 C8	3103 B7	3130 B8	3159 B6	3194 C6	3278 C7	3328 A6
1570 A4	2106 B7	2147 A7	2226 A8	2318 A6	2521 B2	2644 A3	3003 C8	3077 C8	3104 B8	3131 B7	3160 B7	3195 C7	3279 C7	3329 A6

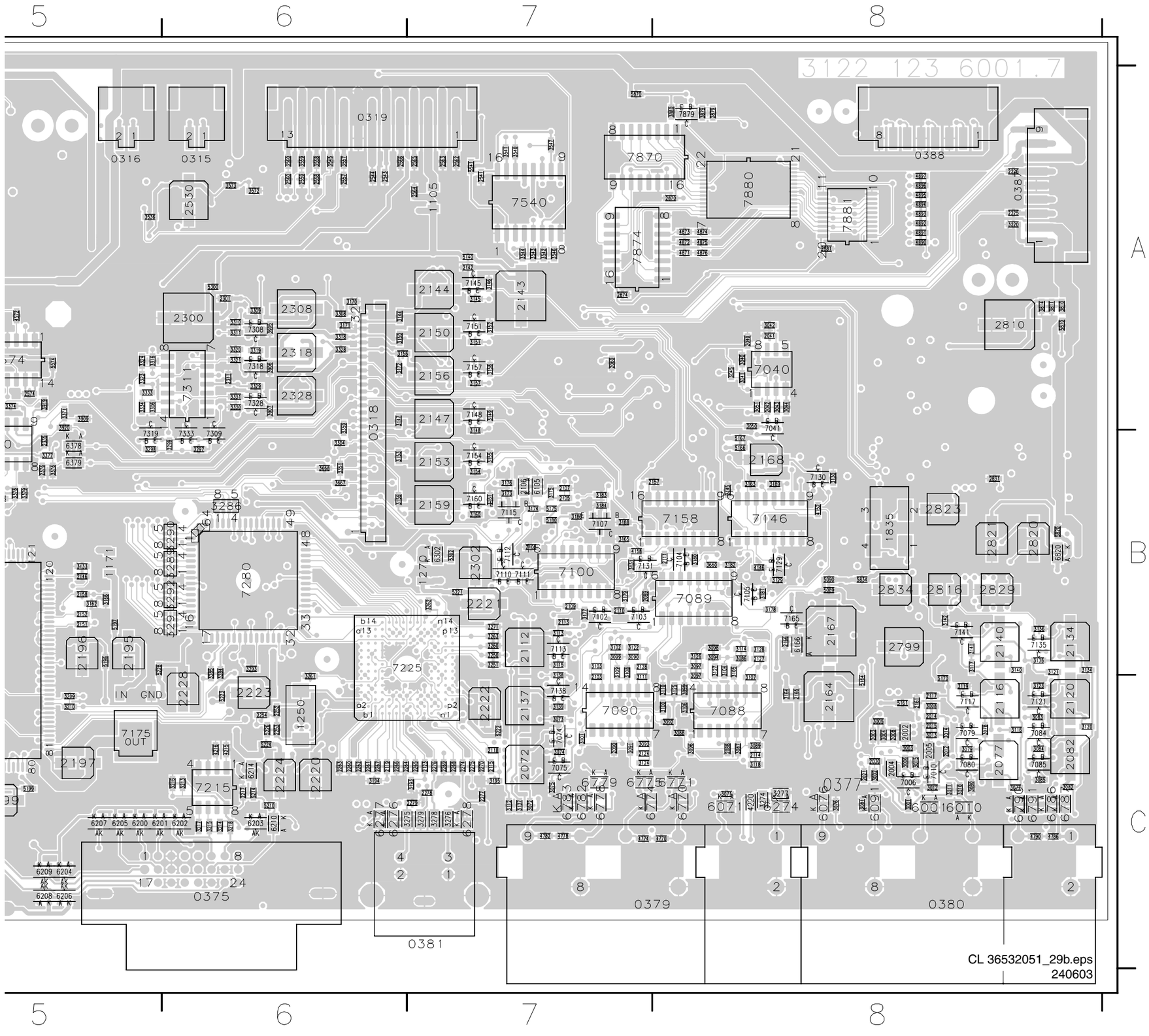
3330 A6	3378 B5	3426 C2	3519 B3	3611 A4	3880 A8	4215 C6	4890 A8	5223 C6	6010 C8	6319 C1	6711 C3	7040 A8	7135 B8	7333 B6
3331 A6	3379 B5	3427 C2	3520 B3	3625 A3	3900 C3	4216 C6	4891 A8	5224 C6	6071 C8	6320 C1	6720 C2	7041 A8	7138 C7	7340 B1
3333 A5	3380 B2	3428 C2	3536 A5	3626 A3	3905 A6	4220 C8	4892 A8	5226 C6	6076 C8	6321 C1	6721 C2	7074 C7	7141 B8	7352 C1
3334 A5	3381 B2	3429 C2	3540 A7	3627 A3	3906 A6	4381 B3	4893 A8	5228 B5	6091 C8	6322 C1	6730 C2	7075 C7	7145 A7	7364 C1
3336 B3	3382 B2	3448 B1	3541 A7	3640 A1	3907 A6	4500 C1	4894 A8	5300 A6	6105 B7	6323 C1	6731 C2	7079 C8	7146 B8	7370 B5
3337 B3	3383 B2	3449 B1	3542 A7	3641 A1	3909 A5	4572 A5	4895 A8	5302 B7	6166 B8	6324 C1	6740 C2	7080 C8	7148 A7	7383 B2
3338 B3	3385 B3	3451 B1	3543 A7	3655 A2	3913 C1	4574 A5	4896 A8	5350 C1	6200 C5	6353 C1	6741 C2	7084 C8	7151 A7	7432 C2
3339 B3	3386 B3	3452 C1	3544 A7	3657 A3	3914 A1	4654 A2	4897 A8	5352 C1	6201 C5	6354 C1	6750 C2	7085 C8	7154 B7	7433 C2
3340 B1	3387 B3	3453 C1	3545 A6	3658 A3	3915 B1	4659 A2	4898 A1	5520 A2	6202 C6	6355 C1	6751 C2	7088 C8	7157 A7	7506 B1
3346 B1	3389 B3	3460 B1	3546 A7	3660 B8	3918 B5	4710 C3	5089 B8	5524 B1	6203 C6	6356 C1	6760 C2	7089 B8	7158 B8	7540 A7
3351 B6	3390 B3	3461 B1	3547 A7	3667 B6	3919 A5	4720 C2	5090 B8	5541 A7	6204 C5	6357 C1	6761 C2	7090 C7	7160 B7	7570 A4
3352 C1	3391 B3	3462 B1	3556 A1	3668 B6	3920 A5	4730 C2	5140 A7	5570 A4	6205 C5	6365 C1	6770 C8	7100 B7	7165 B8	7574 A5
3353 C1	3392 B3	3463 B1	3557 A6	3679 A3	3922 B1	4740 C2	5161 C8	5572 A5	6206 C5	6366 C1	6771 C8	7102 B7	7170 B5	7580 A4
3354 C1	3393 B3	3464 B1	3558 A6	3687 B3	3924 C1	4750 C2	5164 C8	5574 A5	6207 C5	6378 B5	6774 C7	7103 B7	7175 C5	7605 B4
3355 C1	3394 B3	3483 C2	3559 A6	3710 C3	3925 C1	4760 C2	5166 B8	5628 A3	6208 C5	6379 B5	6775 C7	7104 B8	7215 C6	7628 A3
3359 A6	3397 B3	3484 C2	3560 A6	3720 C2	3926 C1	4770 C8	5167 B8	5642 A2	6209 C5	6388 B3	6778 C7	7105 B8	7225 B6	7640 A1
3363 C3	3398 B2	3485 C2	3570 A1	3730 C2	3927 C1	4774 C7	5170 C8	5643 A3	6210 C6	6393 B3	6779 C7	7107 B7	7280 B6	7641 A1
3364 C1	3401 B2	3486 C2	3571 A4	3740 C2	3928 C1	4778 C7	5175 B7	5644 A3	6214 C6	6399 B3	6782 C7	7110 B7	7308 A6	7655 A2
3365 C1	3402 C2	3487 C2	3572 A6	3750 C2	4008 A1	4782 C7	5180 B7	5646 A2	6274 C8	6508 B3	6783 C7	7111 B7	7309 B6	7656 A2
3366 C1	3404 C2	3488 C2	3573 A6	3760 C2	4011 A1	4786 C8	5196 B5	5647 A2	6276 C6	6509 B3	6786 C8	7112 B7	7311 A6	7670 A3
3370 A5	3406 C2	3489 C2	3575 A4	3809 C3	4146 B8	4790 C8	5197 B5	5648 A3	6277 C6	6551 C1	6787 C8	7113 B7	7318 A6	7870 A7
3371 A5	3410 C2	3496 B3	3578 C1	3810 A8	4152 B8	4871 A8	5198 C4	5649 A2	6278 C7	6552 C1	6790 C8	7115 B7	7319 B5	7874 A7
3373 A5	3413 C2	3502 B1	3580 A4	3811 A8	4158 B7	4872 A8	5199 C5	5810 A8	6302 B7	6553 C1	6791 C8	7117 C8	7320 B3	7879 A8
3374 A5	3414 C2	3503 B1	3581 A4	3814 A8	4200 B5	4873 A8	5210 C6	5820 B8	6315 C1	6554 C1	6820 B8	7121 C8	7321 B3	7880 A8
3375 B5	3415 C2	3506 B1	3582 A4	3836 C4	4201 B5	4874 A8	5214 C6	5834 B8	6316 C1	6555 C1	6821 B3	7129 B8	7322 B3	7881 A8
3376 B5	3424 C2	3510 B3	3583 A4	3837 C4	4202 B5	4875 A8	5221 B7	5870 A7	6317 C1	6556 C1	7006 C8	7130 B8	7323 C3	
3377 B5	3425 C2	3512 B3	3610 B3	3879 A8	4203 B5	4876 A8	5222 C7	6001 C8	6318 C1	6710 C3	7010 C8	7131 B7	7328 A6	



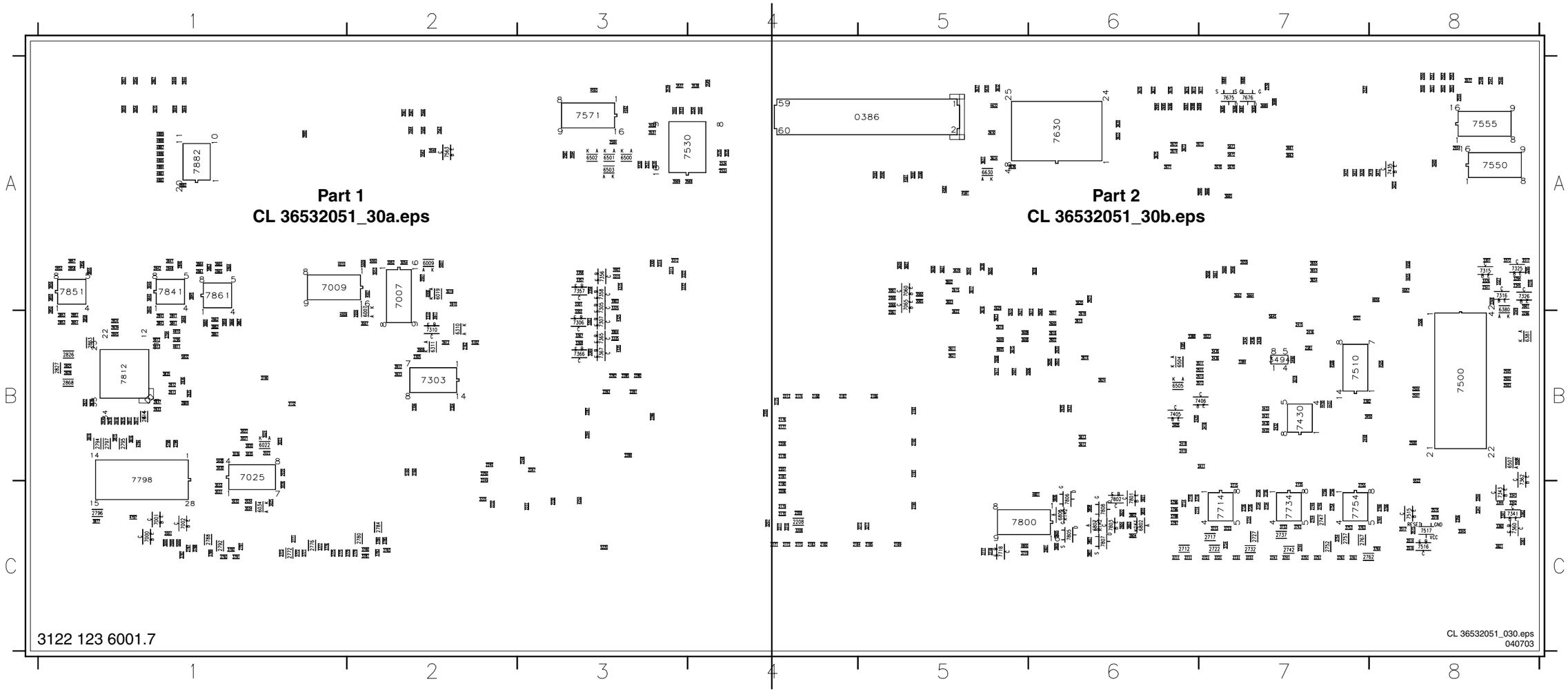
Layout SCAVIO Panel (Part 1 Top Side)



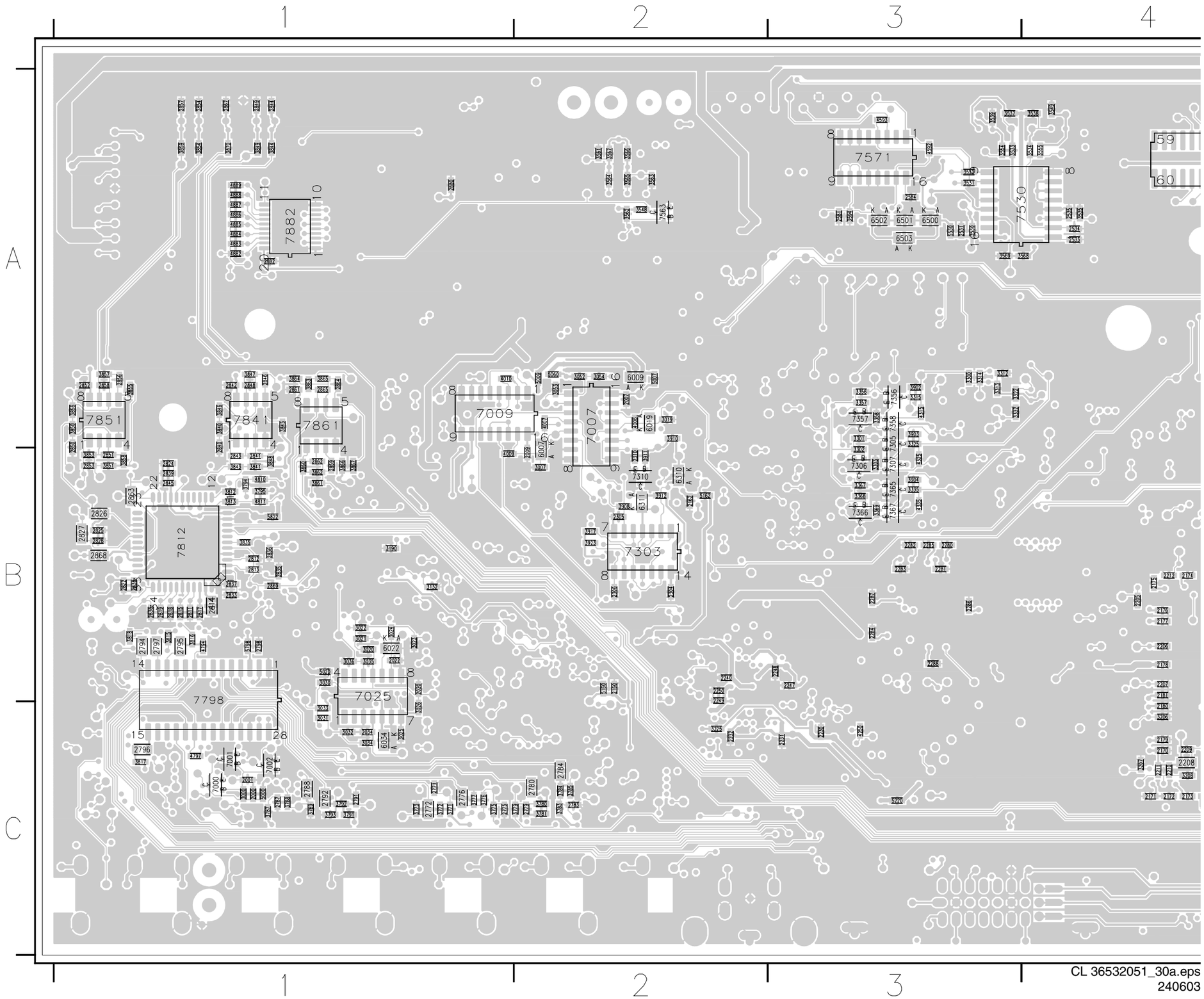
Layout SCAVIO Panel (Part 2 Top Side)



Layout SCAVIO Panel (Overview Bottom Side)

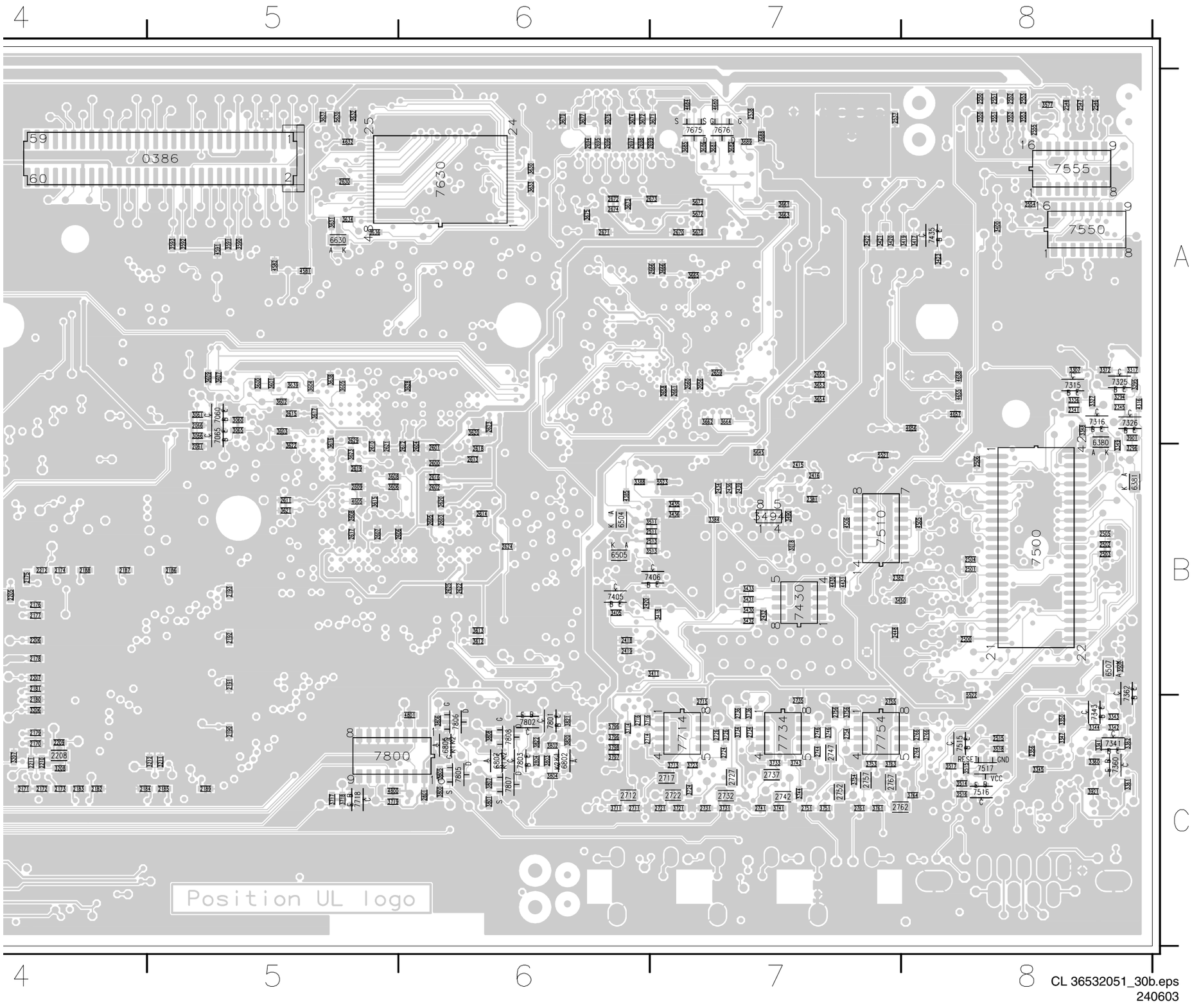


Layout SCAVIO Panel (Part 1 Bottom Side)



CL 36532051_30a.eps
240603

Layout SCAVIO Panel (Part 2 Bottom Side)



CL 36532051_30b.eps
240603

VGA Connector Panel

VGA CONNECTOR

VGA1 IN

VGA2 IN / OUT

4 x BUFFER

NVM

TO 0318 SC6 SCAVIO

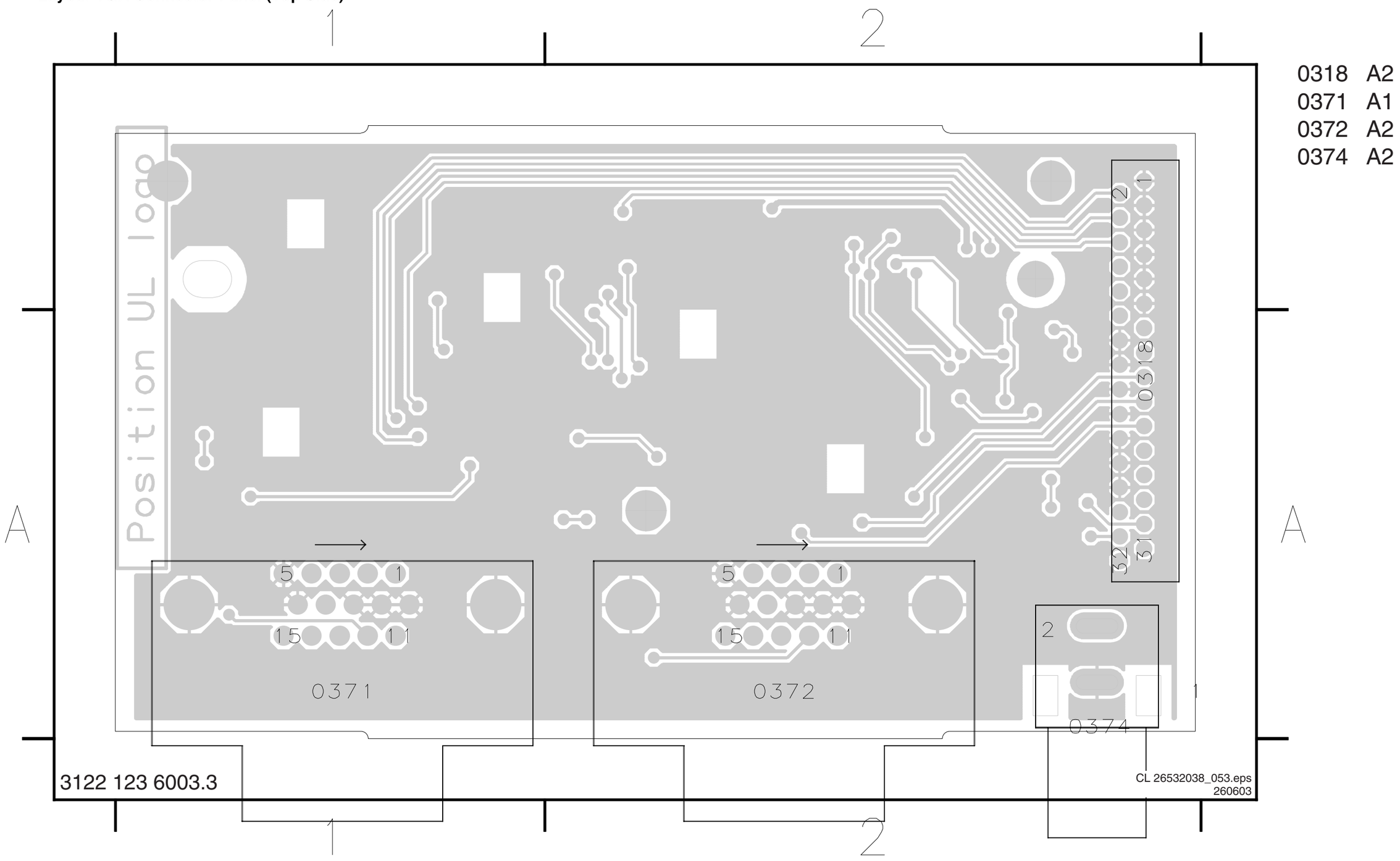
RC-OUT

3122 123 6003.3

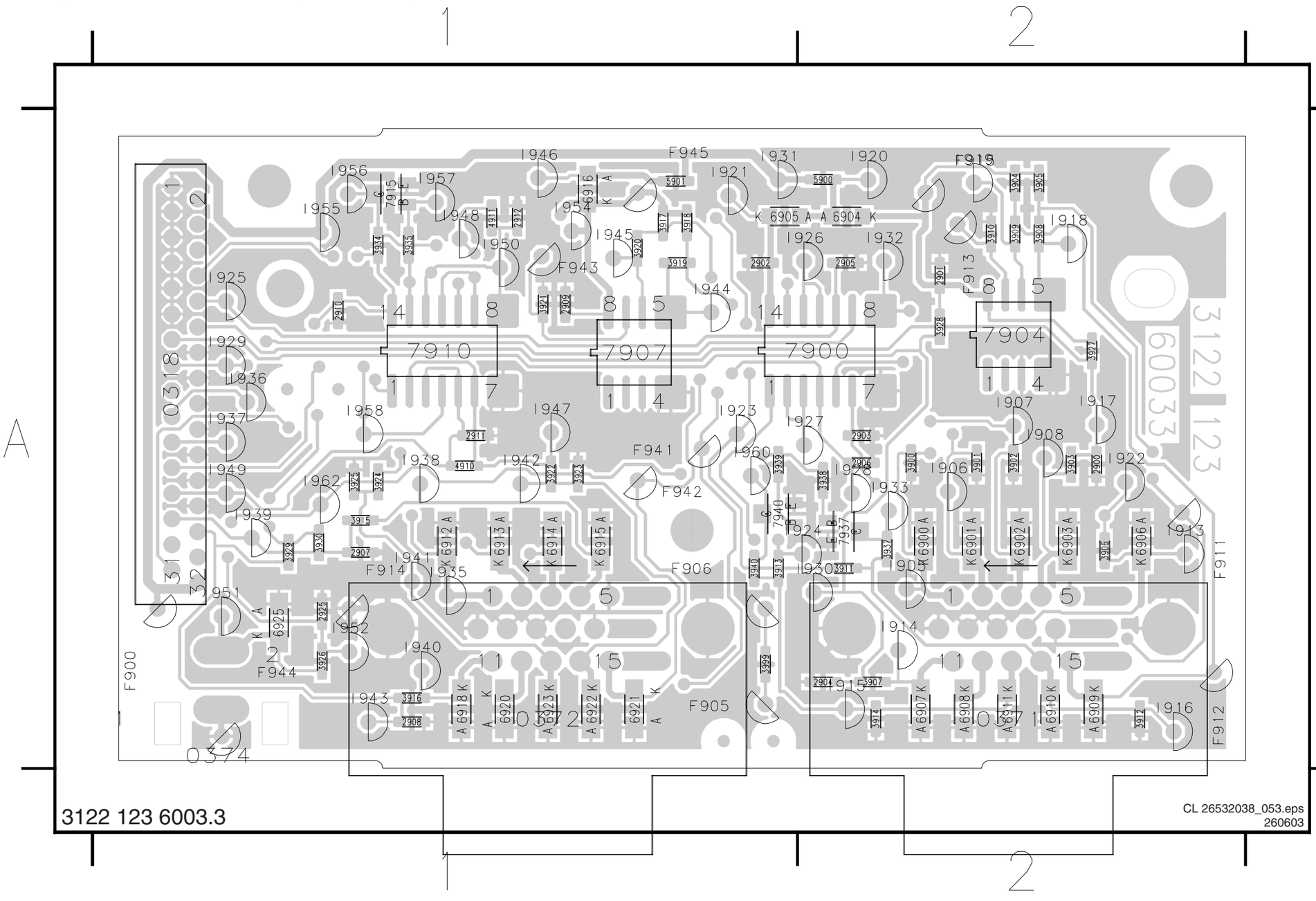
CL 26532038_052.eps 260603

0318 C13
0371 B1
0372 F1
0374 H13
2900 B3
2901 C6
2902 C7
2903 C7
2904 D3
2905 D9
2906 E9
2907 G3
2908 G3
2909 G6
2910 H8
2911 I9
2912 I9
2925 H11
3900 B2
3901 B3
3902 B4
3903 B3
3904 C4
3905 C4
3906 C2
3907 C3
3908 C5
3909 D5
3910 D5
3911 D7
3912 E2
3913 E7
3914 E2
3915 G2
3916 G3
3917 G4
3918 G4
3919 H5
3920 H5
3921 I5
3922 I3
3923 I2
3924 I3
3925 I2
3926 H12
3927 B5
3928 C5
3929 G6
3930 G6
3934 G9
3935 H9
3937 D6
3938 E7
3939 E7
3940 E6
3999 A12
4910 H8
4911 I8
5900 B6
5901 G7
6900 B2
6901 B3
6902 B3
6903 B2
6904 B6
6905 B6
6906 D2
6907 D2
6908 D3
6909 D1
6910 E2
6911 E2
6912 F2
6913 F3
6914 F3
6915 G2
6916 G7
6918 H2
6920 H3
6921 I1
6922 I2
6923 I2
6925 H12
7900-A D8
7900-B D9
7900-C C8
7900-D D9
7900-E D9
7900-F D8
7904 D5
7907 H5
7910-A H7
7910-B H9
7910-C I7
7910-D I9
7915 H9
7937 E6
7940 E6
F900 G12
F905 A11
F906 A12
F911 C4
F912 D4
F913 D5
F914 D5
F915 D5
F941 H4
F942 H4
F943 H5
F944 I5
F945 H5
I905 A2
I906 A2
I907 B2
I908 B2
I913 C2
I914 C2
I915 C1
I916 D1
I917 B3
I918 C5
I919 D5
I920 B6
I921 B7
I922 C8
I923 D8
I924 E8
I925 D9
I926 D9
I927 E9
I928 E9
I929 C9
I930 C9
I931 B7
I932 C9
I933 D6
I935 F2
I936 F2
I937 F2
I938 G2
I939 G3
I940 H2
I941 H1
I942 H1
I943 G4
I944 H5
I945 H5
I946 G7
I947 H6
I948 I6
I949 H9
I950 I9
I951 H12
I952 H12
I954 G6
I955 G8
I956 H7
I957 G9
I958 G9
I960 E6
I962 E8

Layout VGA Connector Panel (Top Side)



Layout VGA Connector Panel (Bottom Side)



0318	A1	3930	A1
0371	A2	3934	A1
0372	A1	3935	A1
0374	A1	3937	A2
2900	A2	3938	A2
2901	A2	3939	A1
2902	A1	3940	A1
2903	A2	3999	A1
2904	A2	4910	A1
2905	A2	4911	A1
2906	A2	5900	A2
2907	A1	5901	A1
2908	A1	6900	A2
2909	A1	6901	A2
2910	A1	6902	A2
2911	A1	6903	A2
2912	A1	6904	A2
2925	A1	6905	A1
3900	A2	6906	A2
3901	A2	6907	A2
3902	A2	6908	A2
3903	A2	6909	A2
3904	A2	6910	A2
3905	A2	6911	A2
3906	A2	6912	A1
3907	A2	6913	A1
3908	A2	6914	A1
3909	A2	6915	A1
3910	A2	6916	A1
3911	A2	6918	A1
3912	A2	6920	A1
3913	A1	6921	A1
3914	A2	6922	A1
3915	A1	6923	A1
3916	A1	6925	A1
3917	A1	7900	A2
3918	A1	7904	A2
3919	A1	7907	A1
3920	A1	7910	A1
3921	A1	7915	A1
3922	A1	7937	A2
3923	A1	7940	A1
3924	A1		
3925	A1		
3926	A1		
3927	A2		
3928	A2		
3929	A1		

8. Electrical Alignments

Index of this chapter:

Note: The Service Default Mode (SDM) and Service Alignment Mode (SAM) are described in chapter 5. Menu navigation is done with the "CURSOR UP, DOWN, LEFT, OR RIGHT" keys of the remote control transmitter.

8.1 General Alignment Conditions

Perform all electrical adjustments under the following conditions:
Mains voltage and frequency: 220 V_ac / 50 Hz unless otherwise stated.
Connect the set to the Mains via an isolation transformer.
Allow the set to warm up for approximately 20 minutes.
Measure the voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply). Never use the cooling fins/plates as ground.
Test probe: Ri > 10 Mohm, Ci < 2.5 pF.
Use an isolated trimmer/screwdriver to perform the alignments.

Use a VGA-generator (e.g. Astro) or a Personal Computer (*) as test pattern generator (contact your National Service Organisation for the necessary PC test pattern files) and connect it to the VGA1 input of the plasma monitor. When you use a PC, start Microsoft PowerPoint (or Paintbrush), and load the mentioned file. Then display the picture as full screen.

(*) If you use a PC as generator, please check (measure) if the video output signals fulfil the VGA standards (see chapter 1).

8.2 Hardware Alignments

There are no hardware alignments necessary.

8.3 Software Alignments

Enter the Service Alignment Mode (see chapter 5). The SAM menu will now appear on the screen.
Select one of the following alignment menus via the upper horizontal bar:
1. GENERAL (GEN.)
2. DISPLAY (DISP.)
3. SCALER (SCAL.)
4. VIDEO 1 (VID.1)
5. VIDEO 2 (VID.2)
6. OPTIONS (OPT.)

The last three items are not available in the Basic configuration.

Note: There are several methods to exit the SAM, each with its own characteristics:
- Switch the set "off" (with the Mains switch or by pulling the Mains cord); new alignment settings are **always** stored, even when item "store" was not activated!
- Switch the set to "standby" by pressing the power button on the remote control transmitter; new alignment settings are **always** stored, even when item "store" was not activated!
- Use a standard RC-transmitter and key in the code **00**; new alignment settings are **not** stored, except when item "store" was activated!

8.3.1 GENERAL

Table 8-1 SAM Menu "GEN."

Service Alignment Menu	General (Gen.)
Type nr. - AG Code	32FD9944/01S (example)
SW version OTC	AAAABC-X.Y xxxxx
SW version PW	AAAABC-X.Y xxxxx
SW version EPLD	AAAABC-X.Y xxxxx
Errors 1	xx xx xx xx xx
Errors 2	xx xx xx xx xx
Operational hours	xx
Reset error buffer	Press OK to reset
Store	Press OK to store

This menu is fully explained in chapter 5.

STORE
Select this item, and press OK, to store the alignments.

8.3.2 DISPLAY

Table 8-2 SAM Menu "DISP."

Service Alignment Menu	Display (Disp.)
Test pattern	On / Off
Contrast	Adjust ...
Gamma	Adjust ...
White point	Adjust ...
Compensation fact.	0 <-------|-------> 255 128

TEST PATTERN
Possible to generate an "even white" test pattern, which is generated by the PDP. You can use this picture, to check the plasma display for pixel defects.

CONTRAST
Not necessary to align, fixed value is "255".

GAMMA
Not necessary to align, fixed value is "2".

WHITE POINT
Not necessary to align, unless stated by the NSO. Fixed value is "255".

COMPENSATION FACTOR
Not necessary to change. Fixed value is "128". In some cases however, a new software table must be loaded in the Pixel Works Scaler (via ComPair). The following service scenarios are possible:
- **When a defective glass filter plate is replaced:** This requires a new "White Point" adjustment (see next paragraph).
- **When a defective PDP is replaced by the same type:** This requires a new "White Point" adjustment (see next paragraph).
- **When a defective PDP is replaced by another (newer) type:** This requires both a new compensation table upload (by ComPair), and a new "White Point" adjustment (see next paragraph). **Note:** The loaded software, performs the settings automatically.
- **When a new software table must be loaded in the Pixel Works Scaler (e.g. in case of a software update):** This requires both a new compensation table upload (by

ComPair), and a new "White Point" adjustment (see next paragraph).
Note: The loaded software, performs the settings automatically.

8.3.3 SCALER

Table 8-3 SAM Menu "SCAL."

Service Alignment Menu	Scaler (Scal.)
Test pattern	On / Off
Color temperature	6500K / 8700K / 10000K
White point	Adjust ...
Align ADC	Press OK to execute
Clear user settings	Press OK to clear

TEST PATTERN
This function makes it possible to generate a "colour bar" test pattern (generated by the PW Scaler IC). You can use this picture, to check the video path, starting at the PW Scaler IC to the plasma display.

COLOUR TEMPERATURE
Select the appropriate colour temperature for the alignments (see also "White point" adjustment below).

WHITE POINT

Table 8-4 SAM Menu "SCALER - WHITE POINT"

Service Alignment Menu	Scaler - White point
White point red	<----------|----------> 125
White point green	<---------|----------> 100
White point blue	<----------|----------> 110
Press OK when done	

Notes:
- First align the ADC (see ALIGN ADC) **before** aligning the WHITE POINT.
- The alignment values should NOT exceed the value "128".

Method 1 (with colour analyser)
Supply, via an external VGA source (e.g. a VGA generator, or a PC in 640x480 mode), a "**White Drive**" test pattern (ask your NSO for the PC file). This picture consists of black picture (0 mV) with in the middle a 100% white (0.7 V) square with dimensions 202x152.

1. Set "Brightness" to "50" and "Contrast" to "71" (via the standard customer menu).
2. Go to the SAM menu.
3. Set COLOR TEMPERATURE to "8700 K" (with the introduction of the high brightness H2 plasma panels, the "NORMAL" colour temperature is adapted from "7600 K" to "8700 K").
4. Measure with a CTV colour analyser (calibrated with the spectra) on the centre of the white square on the screen.
5. Select WHITE POINT in the SAM SCALER menu, and press CURSOR RIGHT.
6. Adjust with the CURSOR UP/DOWN or LEFT/RIGHT command, the three WHITE POINTS RED, GREEN and BLUE to "128" (do **not** go above this value!), and align with one or two of the drivers to the correct coordinates (see table).
7. Repeat the same measurement for respectively colour temperature "6500 K" and "10000 K".
8. Repeat again if necessary.

Table 8-5 White Point XY-coordinates

Colour Temperature	x	y
6500 K (Cool)	313	329
8700 K (Normal)	289	299
10000 K (Warm)	280	289

Method 2 (without colour analyser)
Without having a CTV colour analyser, it is possible to directly set some parameters, which are based on average values from production.

Table 8-6 White point RGB-values 32-inch monitor

Col. Temp. 32"	R	G	B
6500 K (Cool)	114	125	128
8700 K (Normal)	119	128	128
10000 K (Warm)	125	128	115

Table 8-7 White point RGB-values 37-inch monitor

Col. Temp. 37''	R	G	B
6500 K (Cool)	112	128	127
8700 K (Normal)	117	128	124
10000 K (Warm)	119	128	111

Table 8-8 White point RGB-values 42-inch monitor

Col. Temp. 42"	R	G	B
6500 K (Cool)	116	126	128
8700 K (Normal)	119	128	125
10000 K (Warm)	127	127	112

ALIGN ADC
Supply, via an external VGA source (e.g. a PC, mode 640x480), the "**ADC alignment**" test pattern (ask your NSO for the PC file).
The upper 360 lines of this picture consists of a half black and half white picture with the following settings (on a full scale of "255"):
- Black "17" (47 mV).
- White "255" (700 mV).

The lower 120 lines of this picture, are vertically divided into 4 boxes of 160 pixels each with (from left to right) the following settings:
- Black "0" (0 mV).
- Black "5" (14 mV).
- White "250" (686 mV).
- White "255" (700 mV).

1. Go to the SAM menu.
2. Select ALIGN ADC in the SAM Scaler menu, and press CURSOR RIGHT.
3. The alignment is performed automatically.

CLEAR USER SETTINGS
In some (rare) cases it is possible that the PW Scaler recalls settings, which are made earlier by the user (e.g. "phase" or "shift"), and not the last (wanted) settings. To correct this problem, one can select this function.

8.3.4 VIDEO 1 (Enhanced version only)

Table 8-9 SAM Menu "VID. 1"

Service Alignment Menu	Video 1 (Vid. 1)
Test pattern	On / Off
Brightness	0 <----------|---------- > 255
Contrast	0 <----------|---------- > 255
Sharpness	0 <----------|---------- > 255

TEST PATTERN
This function makes it possible to generate a "full white" test pattern (generated by the de-interlacer SDA9400, item 7280). You can use this picture, to check the video path of the external inputs AV1, AV2, and AV3, starting at item 7280 (**mind you:** the proper functioning of the Digital Video Decoder SAA7118 is not tested!).

Note: To generate the test pattern, it is necessary to feed a signal to one of the AV-inputs.

BRIGHTNESS
This is the setting of IC7225 (SAA7118). Not necessary to align, fixed value is:
- "132" for PAL/SECAM.
- "139" for NTSC.

CONTRAST
This is the setting of IC7225 (SAA7118). Not necessary to align, fixed value is:
- "139" for PAL/SECAM.
- "128" for NTSC.

SHARPNESS
Not necessary to align, fixed value is "6".

8.3.5 VIDEO 2 (Enhanced version only)

Table 8-10 SAM Menu "VID. 2"

Service Alignment Menu	Video 2 (Vid. 2)
Lum. delay PAL	0 <----------|---------- > 7
Lum. delay SECAM	0 <----------|---------- > 7
Lum. delay NTSC	0 <----------|---------- > 7

With these alignments, you can place the luminance information on the chrominance information (push brightness onto the colour). Use a colour bar/grey scale pattern as test signal. These values are normally fixed.

LUM. DELAY PAL
Apply a PAL colour bar/grey scale pattern as a test signal. Adjust value until the transients of the colour part and black and white part of the test pattern are at the same position. Fixed value is "4".

LUM. DELAY SECAM
Apply a SECAM colour bar/grey scale pattern as a test signal. Adjust value until the transients of the colour part and black and white part of the test pattern are at the same position. Fixed value is "4".

LUM. DELAY NTSC
Apply a NTSC colour bar/grey scale pattern as a test signal. Adjust value until the transients of the colour and black & white part of the test area are at the same position. Fixed value is "4".

8.3.6 OPTIONS (Enhanced version only)

Table 8-11 SAM Menu "OPT."

Service Alignment Menu	Options (Opt.)
Vs/Va control	On / Off
Display size	32" / 42"
Virgin	On / Off
ICONN control	On / Off
FAN control	On / Off

Vs/Va CONTROL
When this option is set to "on", it will enable the "PDP feedback loop" for the **automatic** V_s and V_a alignment. See table below for the correct setting.

Table 8-12 V_s/V_a Control options

	PSU version 3	PSU v.3 with precision R's	PSU version 4
PDP with Vs feedback (-52 PDP)	Feedback loop 'OFF', alignment is necessary.	Feedback loop 'ON', but alignment (check) is necessary (see par. 8.2 for values) .	Feedback loop 'ON', no alignment necessary.
PDP with Vs/Va feedback (with 'B' in serial number)	Feedback loop 'OFF', alignment is necessary.	Feedback loop 'ON', no alignment (check) necessary.	Feedback loop 'ON', no alignment necessary.

DISPLAY SIZE
This option is only meant for the factory, to indicate the display size for the software.
Note: When none of the items is highlighted, the 37-inch display is selected.

VIRGIN
Normally "off". When this option is set to "on", the display starts with the language selection menu.

ICONN CONTROL
Normally "off". Set this option to "on" in case a so-called "ICONN"-box (for Hotel TV) is connected to the display.
Caution: When this option is set to "on", **without an ICONN-Box** connected to the monitor, one cannot control the monitor anymore (because the RC connection is interrupted).
There are two ways to restore the remote control again:
Connect pin 8 (IR_TX) to pin 9 (IR_RX) on the RS232 connector of the monitor (the easiest way to do this, is to make a "dummy" connector with these pins connected, and plug this into the monitor), or
Set the set in the Service Alignment Mode (SAM) via **shorting jumpers 1 and 2 of connector 0382** on the SCAVIO panel. After this, you can enter the appropriate menu to set ICONN CONTROL to "off" again.

FAN CONTROL
Normally "off". Set this option to "on", when the optional fans are mounted (ask your NSO for info).

9. Circuit Descriptions, List of Abbreviations, and IC Data Sheets

Index of this chapter:

Notes:

- Figures can deviate slightly from the actual situation, due to different set executions.
- For a good understanding of the following circuit descriptions, please use the diagrams in chapter 6 and 7. Where necessary, you will find a separate drawing for clarification.

9.1 Introduction

The FM-chassis is the 3rd generation Philips plasma monitors. In comparison to the FTV1.9DE, it has:

- A power supply that is based on the MG-chassis,
- A new SCAVIO panel, which takes over the tasks of the former AVC and LIMESCO panels.
- A new, class-D, audio amplifier,
- A new, improved, Plasma Display Panel (with new ALiS technology).

It is possible to use this product as stand-alone monitor or, in combination with the so-called F21RE Receiver box, for TV applications.

In this manual, we combined three screen sizes (32-inch as FM23, 37-inch as FM33, and 42-inch as FM24) into one manual. When there are important differences between these versions, this is explicitly mentioned.
For these chassis, there are two configurations:

- **Basic:** which has one video input (VGA1) and one video output (VGA2). The VGA2 video output is directly connected to the VGA1 video input, without any processing. The audio output of VGA2 is also directly connected to the VGA1 audio input.
- **Enhanced:** which has six video inputs (VGA1, VGA2, DVI-D, CVBS, YC and HD) and six corresponding audio inputs. These inputs are internally converted to the appropriate signals. The VGA2 connection is here bi-directional (Flex-VGA).

Note: In all descriptions below, the *Enhanced* version of this FM-chassis is discussed. When there are important differences between the *Basic* and *Enhanced* versions, this is mentioned.

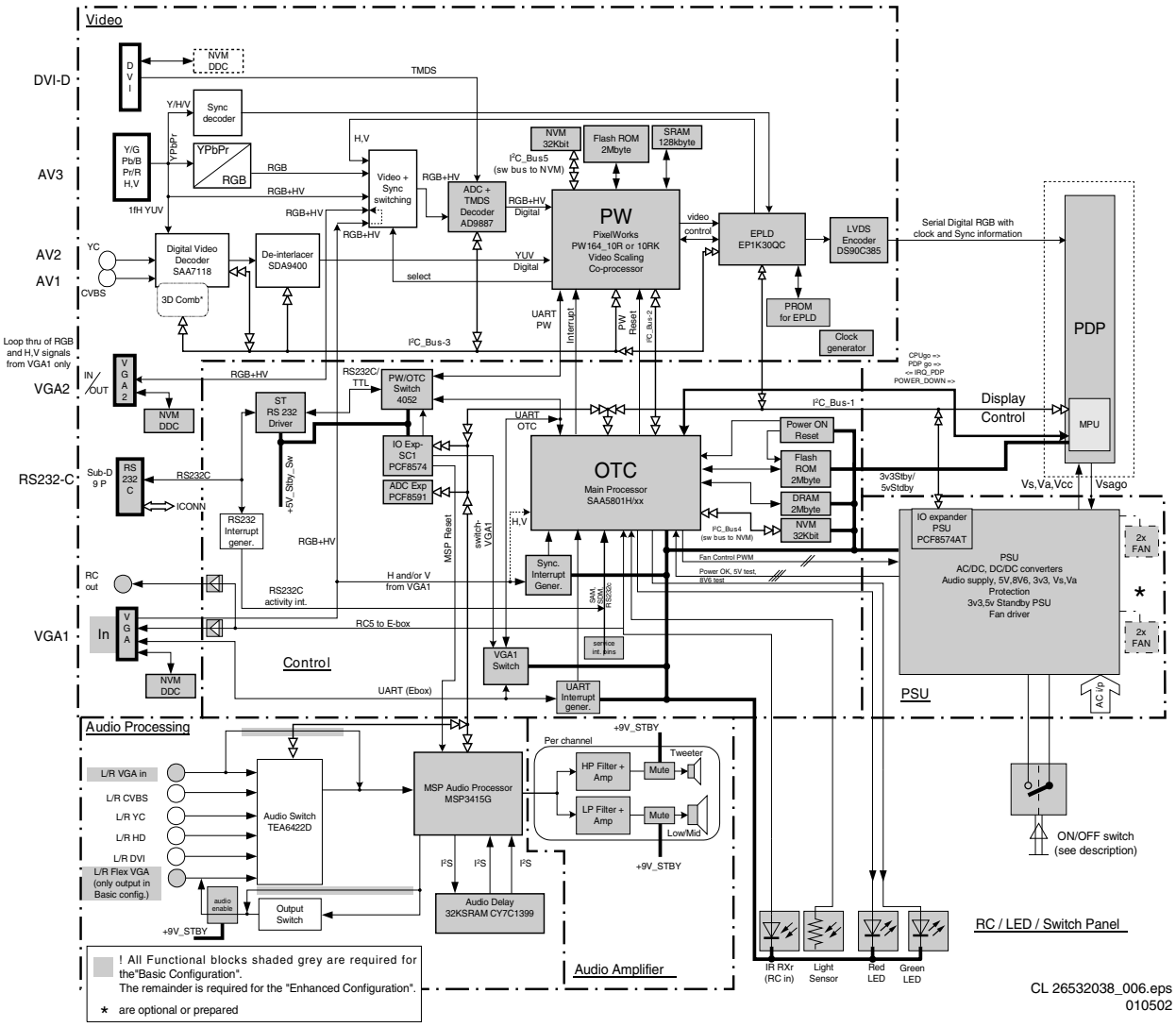


Figure 9-1 Control and Data Path

9.1.1 Input/Output

The main inputs are:
- **Basic:** VGA only,
- **Enhanced:** VGA, Flex-VGA, DVI-D, HD-RGB+HV, HD-2fH-YPbPr (sync on Y), 1fH-YCbCr (sync on Y), YC, CVBS on cinch. Flex-VGA gives the user a choice to configure the "loop-through VGA output" as an output or as input.

9.1.2 Video

This mainly consists of an analogue processing part and a digital processing part. The video inputs like VGA (*Basic* configuration), CVBS, YC, HD-RGB/YUV (1fH and 2fH) and DVI-D are received and processed.
The VGA signals are first converted to digital signals and then processed by the PW Scaler.

The YPbPr (2fH) signal is discretely converted to RGB, whereas the YCbCr (1fH) signal is processed in the SAA7118 Digital Video decoder.

The base-band video inputs (CVBS and YC) are output from this decoder as digital YUV, which are then further processed by the Pixel Works Scaler (PW).

The signals on the digital DVI input are first decoded by the TMDS decoder inside the AD9887 and then processed by the PW Scaler.

The PW Scaler output is going through an EPLD and then via an LVDS Encoder to the Fujitsu/Hitachi PDP (Plasma Display Panel) as differential serial data. This PDP is based on ALiS (Alternate Lighting of Surface) technology and is an interlaced display, with separate odd and even fields to be displayed.

9.1.3 Audio

This mainly hosts the audio inputs for the various video inputs. They go through an I2C controlled source selector. The main audio processing is done by the Micronas MSP3415G version with built-in Ultra Bass-II algorithm.

A digital delay line is created using the I2S channel and SRAM. The delay created can be selected between two values, one for the Receiver box, and one for the Monitor.

The processed audio signals are then differentially transmitted to the audio amplifier panel. This amplifier drives a tweeter and a twin-drive woofer (low/mid range). Active filtering is done before the amplifiers.

9.1.4 Control

The main controller is the OTC, referred to as the "main processor". This operates in co-ordination with the processor in the Pixel Works Scaler (PW), referred to as the "co-processor".

When the plasma monitor is connected to an F21RE Receiver box, the UART commands from the Receiver box will control the monitor.
In stand-alone mode, the monitor can be controlled via the Remote Control or via the RS232C port.

DDC1/2B (Digital Data Channel, an I2C-based protocol) is implemented with separate identification NVMs for the two VGA inputs and the DVI-D input as well. In addition, the RS232C port can be used for software download to the PW and the OTC. The target for downloading is controlled via a switch in the RS232C path; the switch itself is controlled by the OTC.

9.1.5 Power Supply

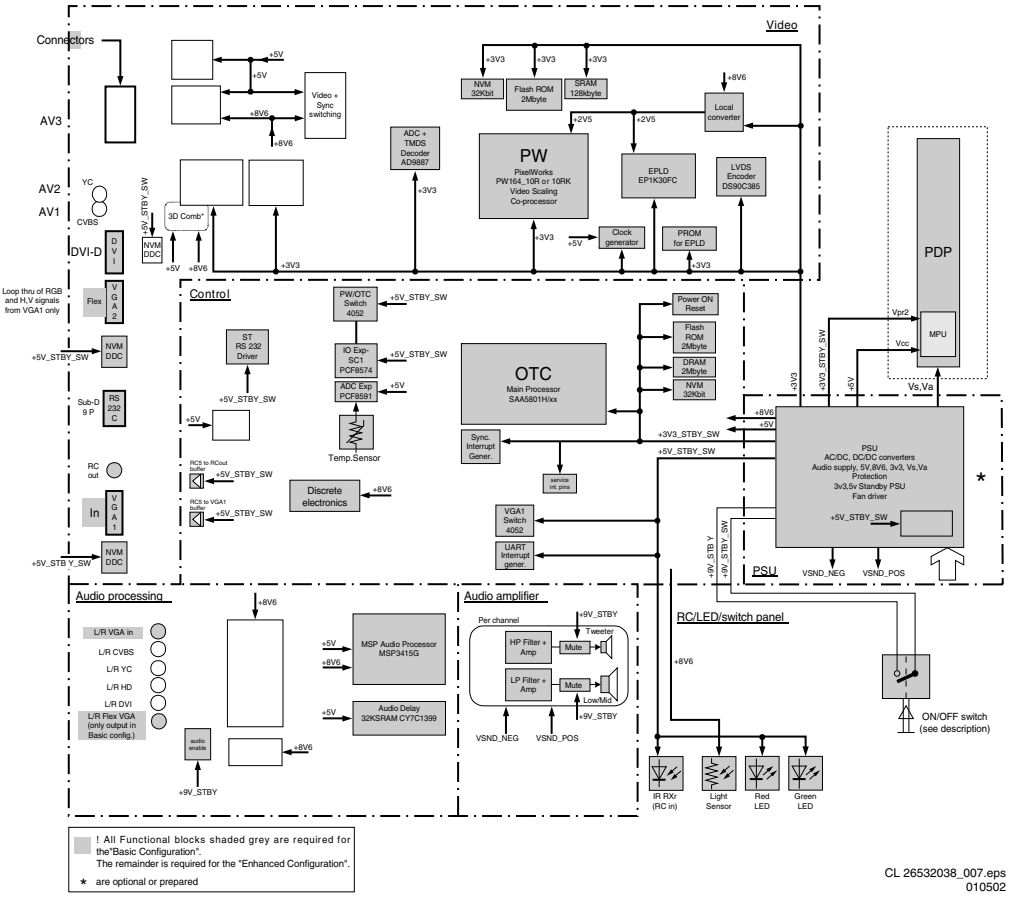


Figure 9-2 Power Supply Path

The PSU consists of a pre-conditioner part and a DC/DC converter part. This converter supplies power to the PDP high voltages, the auxiliary voltages, and the audio amplifier. There is a separate standby power supply, which supplies the Main Processor, PDP microcontroller, interrupt generator and some other circuits.

The mains inlet module will host the inlet and filtering.

There is a functional "Mains on/off" switch on the LED panel. This switch is on the secondary side, controlling the relays on the primary side.

9.2 Power Supply Unit (Diagrams P)

9.2.1 Introduction

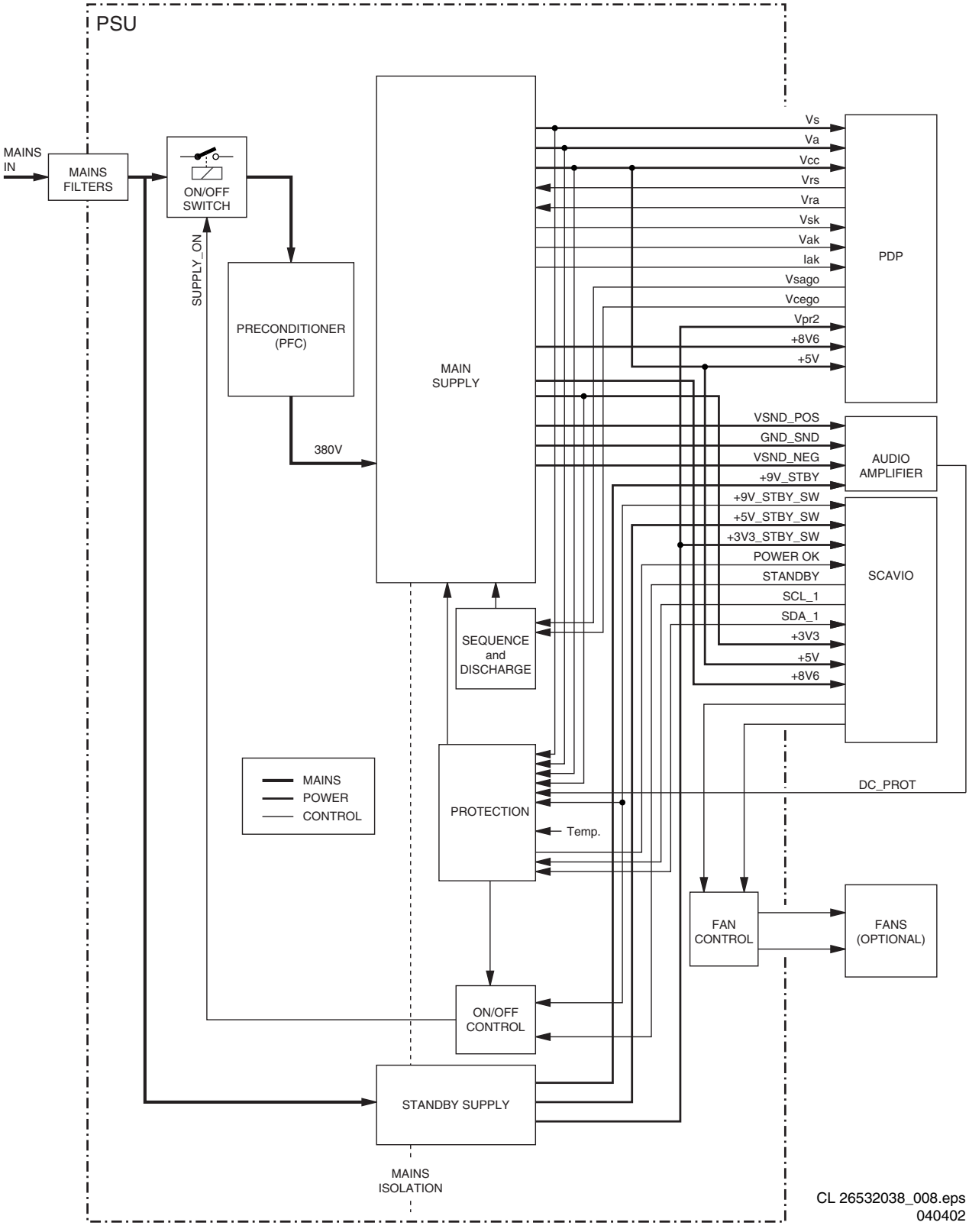


Figure 9-3 Power Supply

Table 9-1 I/O Overview Power Supply

Name	I/O	Value	Description
+3V3	Out	+3.3 V_dc	To supply small signal digital circuitry.
+3V3_STBY_SW	Out	+3.3 V_dc	To supply small signal digital circuitry, needing power in standby
+5V	Out	+5 V_dc	To supply small signal digital circuitry.
+5V_STBY_SW	Out	+5 V_dc	To supply small signal digital circuitry, needing power in standby
+8V6	Out	+8.6 V_dc	To supply the small signal analogue circuitry.
+9V_STBY	Out	+9 V_dc	Signal to functional ON/OFF switch.
+9V_STBY_SW	Out	+9 V_dc	Signal from functional ON/OFF switch.
DC_PROT	In	H/L	Signal from audio amplifier to switch OFF the power supply in case of a safety problem.
FAN_SP_1	In	H/L (TTL level)	PWM signal from uP to control optional fans (group 1).
FAN_SP_2	In	H/L (TTL level)	PWM signal from uP to control optional fans (group 2). Not for FM33.
FAN_SUPPLY_1	Out	5 to 13 V_dc	Supply voltage for optional fans (group 1).
FAN_SUPPLY_2	Out	5 to 13 V_dc	Supply voltage for optional fans (group 2). Not for FM33.
I_ak	Out		Signal to measure 'I_a' in PDP (I_ak= 1 x I_a).
Mains	In	110/240 V_ac, 50/60 Hz	Mains voltage.
POWER_OK	Out	H/L (TTL level)	Signal to an interrupt pin of the uP, which indicates that the power supply is in regulation. If an error occurs, signal goes from H to L.
SCL_1	In	H/L	I2C clock line from uP.
SDA_1	In/ Out	H/L	Bi-directional I2C data line from/to uP.
STANDBY	In	H/L (TTL level)	Signal to switch the PSU to standby mode.
V_a	Out	+30 to +70 V_dc	To supply the addressing circuitry in the PDP.
V_ak	Out		Signal to measure Va in PDP (V_sk= 0.036 x V_a).
V_cc	Out	+5 V_dc	To supply small signal digital circuitry in the PDP.
V_cego	In	H/L (H= +2 V_dc)	Signal to switch the low voltage supplies ON/OFF.
V_ra	In		Signal to control Va (V_a= 30 + (20 x V_ra)).
V_rs	In		Signal to control Vs (V_s= 70 + (10 x V_rs)).
V_s	Out	+70 to +90 V_dc	To supply the sustain circuitry in the PDP.
V_sago	In	H/L (H= +2 V_dc)	Signal to switch the high voltage supplies (V_s and V_a) ON/OFF.
V_sk	Out		Signal to measure V_s in PDP (V_sk= 0.029 x V_s).
V_SND_POS	Out	+14.5 V_dc	To supply the audio amplifier panel.
V_SND_NEG	Out	-14.5 V_dc	To supply the audio amplifier panel.

The Power Supply Unit (PSU) is designed to provide regulated output voltages for the plasma display panel (PDP) and the built-in electronic panels (such as e.g. the SCAVIO and Audio Amplifier panels).
It houses the Pre-conditioner, DC/DC converters and the Standby circuitry. In addition, this panel will house the protection and the (optional) fan drive circuitry.
The mains inlet is mounted alongside the SCAVIO panel. It consists of the necessary high and low frequency mains filters.

The mains AC voltage is applied to the input filter and then fed to the standby supply. This supply is always operational and delivers the +9V_STBY voltage.
The task of the main supply is to deliver the supply voltages for the several electrical circuits in the plasma monitor.
It is switched via two single-pole relays, which are powered from the +9V_STBY voltage and controlled via the SUPPLY_ON signal.
The reason to choose for a separate standby supply instead of a single flyback supply is the requirement to have a low standby power consumption.

The PSU consists of the following parts (which are described separately):
- Mains inlet and filter.
- Standby supply.
- Fan control (optional).
- Pre-conditioner.
- LLC supply.
- Aux. supply.
- Protections.

Notes:
- To understand the descriptions below, see also the diagrams in Chapter 7.
- The descriptions are valid for the whole FM-range (FM23, FM24, and FM33). Where there are deviations, this will be highlighted per chassis.

9.2.2 Mains Inlet and Filter (Diagram P2)

Introduction
The mains filter provides common-mode and differential-mode filtering, to fulfil legal and self-imposed limits. Additional provisions are mains spikes and lightning protection.

Operation
The mains voltage is provided via mains inlet 0308, after which it is fused by a T6.3A fuse (item 1400).
The next part, the mains filter, is **optional**. It consists of an LC common mode filter section. This filter consists of two capacitors (items 2402 and 2403) from both phase and neutral to ground (to reduce the leakage current) and an inductor (5401). Interferences on one of the phases are shorted to ground via these capacitors.
Inductor 5401 also provides a differential-mode filtering with capacitor 2400. Resistor 3401 discharges this capacitor after the mains is disconnected.
A second common mode filter is made around coil 5402 and capacitor 2401. A third filter is made around coil 5404 and capacitor 2412 (*only for the FM24 and FM33*).

Resistor 3400 is a high energy VDR. The advantage of this VDR is that it can handle 400 V_ac without risk of fire. At high voltage peaks (e.g. lightning surge) on one of the phases, the

resistance of VDR 3400 will be very low, causing fuse 1400 to interrupt.
At a lightning surge on both phases with respect to chassis ground, mains filter 5401 will form a high resistance, through which the voltage will rise very sharply.
To prevent flashovers, a spark-gap/ resistor combination (items 1402 and 3404) is implemented.

9.2.3 Standby Supply (Diagram P2)

Introduction
The standby supply is a separate power supply, meant to reduce power consumption of the plasma monitor in standby mode. The standby supply operates on the AC voltage from the input filter part, and has to deliver a stable 9 V voltage.

It has three "mains isolated" outputs, and one "hot" output:
- +9V_STBY (called +9V_STBY_SW after the "on/off" switch 1101), to power the "on/off" relays in the pre-conditioner.
- +5V_STBY_SW (derived from the +9V_STBY via voltage regulator 7540)
- +3V3_STBY_SW, to supply the microprocessor of the PDP.
- 25V_HOT, to supply the LLC controller.

The standby supply is also connected to the pre-conditioner output (400V_HOT), in order to deliver a voltage as long as possible, after switch "off" and at mains dips.

Operation
The standby supply is always operational when the AC input voltage is present, so even when the POWER switch is in the "off" position. After a small rectifier (D6512/6513) and buffer capacitor (C2503), the generated DC voltage is applied to an SMPS (Switched Mode Power Supply).

The SMPS itself is build around IC7500, a "TINYSwitch" TNY256. This IC contains a control circuitry and a power MOSFET. It uses a simple "on/off" control loop to regulate the output voltage. The generated +9V_STBY voltage at the secondary side is rectified by D6504 and smoothed by C2508. The supply for the TNY256 (pin 5) comes via resistor R3506 and L5500.

By using secondary sensing, a very accurate standby voltage and high efficiency is achieved. The sensing circuit uses a TL431 as reference voltage/error amplifier. Optocoupler 7501 is used for the mains isolation.
When the output voltage rises, the reference voltage on the TL431 will exceed 2.5 V and the current through this device and the optocoupler LED will increase. By this, the optocoupler transistor will conduct more. When this current (at pin 4 of IC7500) exceeds 50 A, the MOSFET is switched "off", and the output voltage will drop. When this current drops below 40 A, the MOSFET is switched "on" again.

During the time that the MOSFET is "on", the IC has no supply voltage. To overcome this period, the energy stored in the bypass capacitor C2513 is used. This capacitor is charged during the time the MOSFET is "on".

As the TNY256 is sensitive for transients (mains spikes), a "peak clamp" circuit (300 V zenerdiodes 6501 and 6502) is used to limit the voltage to a safe level.

9.2.4 Fan Control (Optional, Diagram P4)

For ceiling mount or portrait-mode use, there is foreseen in four (two for the FM33) **optional** fans. The temperature within the monitor is measured via a sensor (R3372, KTY81) on the PSU. This sensor is, via A/D converter (item 7530 on the SCAVIO), connected to the OTC. According the temperature within the cabinet, the OTC-software will drive the PWM output of the OTC. The output (FAN_SP_x) is connected to the PSU, where a corresponding voltage is generated to supply the fans. This FAN_SUPPLY_x voltage is proportional to the duty cycle of the corresponding PWM signal.
The OTC senses the temperature every five s. If it has reached the alarm temperature, and this value has been measured three times consequently, the monitor will go into protection and a error-code is generated.

9.2.5 Pre-conditioner (Diagram P5)

Warning: the pre-conditioner does **not** provide mains isolation.

Introduction
The European Law describes a reduction of mains harmonics for apparatus with a power consumption above 75 W.
Therefore the pre-conditioner is designed. This module serves as the interface between the mains input and the V_s/V_a supply.
The advantage of a pre-conditioner is (compared to a mains input filter):
- Reduction of mains harmonics to legal limits.
- Lower mains current for the same output power.
- Power factor close to 1.
- Stable regulated output.
- Small and low weight.

The input voltage of the pre-conditioner is universal, between 95 and 264 V_ac. The output is 400 V_dc (400V_HOT) with a maximum output power of 300 W (FM23) or 400 W (*FM24 and FM33*). This output voltage is delivered to the V_s supply.

Operation

Start-up
The two relays (1450 and 1460, diagram P2) are controlled via the SUPPLY_ON signal. This signal will become "high" when the +9V_STBY_SW, the STANDBY (from the OTC), and the LATCH signal are "ok". It then switches indirect relay 1450 via transistor 7460 and so enables the use of a small, low voltage, switch.
To protect rectifier 6600 and relay 1450, the inrush current is limited to a maximum of 20 A by charging the capacitor 2605 through a PTC (items 3450 and 3451) and an NTC (items 3452 and/or 3453).
After approximately 0.5 sec, relay 1460 is activated. This relay will short the PTCs. The advantage of using an NTC, is the fact that the resistance varies with the current and hence the mains voltage. At a high mains voltage, the current is lower for the same power.

Two clamp diodes 6605 and 6606, charge output capacitor C2616 to the peak voltage of the mains input. During normal operation, both diodes are blocked because of the output voltage of 400 V_dc, and will only conduct if there is a mains spike or an output dip.

Capacitor 2616 then delivers, via R3668, the start-up voltage at pin 16 of IC7650. After the start-up cycle, IC7650 is supplied via auxiliary winding 1-2. Capacitor C2663 is charged during the cycle that MOSFET 7610 conducts. While MOSFET 7610 is switched "off", this capacitor transfers its energy via D6661 to:
- The input of stabiliser IC7660 (*for FM23 and FM24*).
- The input of DC-DC converter IC7661 (*for FM33*). This circuit was changed for a better efficiency.

The output voltage of this IC is fed via D6665 to V_cc pin 12 of IC7650.The slow start function is realised by the circuit consisting of transistor 7654, D6654, R3654, and C2654.

Normal Operation
An up-converter circuit is used for the pre-conditioner. The switching frequency of the converter is chosen much higher than the mains frequency. It is therefore possible to consider the supply as constant, during every high frequency period,

and the envelope of all voltage steps during the low frequency period approximates a half sine wave.
The output voltage of the pre-conditioner equals the input voltage, when the MOSFET is continuous switched "off", and increases while the MOSFET is switched "on".

The rectified mains input voltage is connected to pin 5 of IC7650 via voltage divider R3603/04/05 and R3651. This voltage is proportional with the mains input, and is used to change the duty cycle of the pulses, which are generated at pin 11. Because the width of these pulses is not small enough, the circuit around transistors 7640 and 7641 is added. It decreases the duration of the square wave by 500 ns (this value is set by R3640 and C2640).
A demagnetisation winding (pin 1-2 of L5600) detects when there is no energy in the transformer. This information is fed to IC7650 pin 7 and this is used to switch "on" the MOSFET (7610). In this way, the dissipation is very low, combined with a low EMI.
The MOSFET 7610 is switched "off" at high currents, up to 15 A. To reduce dissipation, this is done at high speed for which "turn off driver" T7608 is used.

The output voltage (400 V) is divided by R3680/81/82 and R3671 and connected to pin 3 of IC7650. A change in the load will adjust the duty cycle of the gate pulse at pin 11, in order to keep the output voltage constant. Therefore, there is no need to adjust the output voltage by means of a potentiometer.

Protections

Current Protection
The current through FET 7610 flows also through the sense resistors 3614 and 3615. The voltage across these resistors is fed to pin 6 of IC7650. If the current exceeds its reference level, the pre-conditioner will switch "off". A filter, formed by C2666 and R3666, avoids unnecessary protection triggering due to spikes.
C2665 and R3665 on pin 13 determine the maximum oscillating frequency.

9.2.6 LLC Supply (Diagram P6)

Introduction
The V_s supply (70-90V) is based upon the so-called LLC converter technology (also used in the MG3.1 and FTV1.9). It is used to supply the power of the sustain pulses, which generate the light in the PDP. The voltage is set by a reference DC voltage (V_rs), coming from the PDP.
The V_a voltage (derived from V_s) is used to supply the power for driving the addressing electrodes of the PDP. The value of V_a is also depending on a reference voltage (V_ra) coming from the PDP.

The main supply hosts the following supplies:
- V_s supply, via an LLC converter.
- V_a supply, derived from V_s via a down converter.
- V_cc, via a flyback converter.
- 3V3, via a down converter.
- Audio amplifier supplies (V_SND_POS and V_SND_NEG), via a transformer.

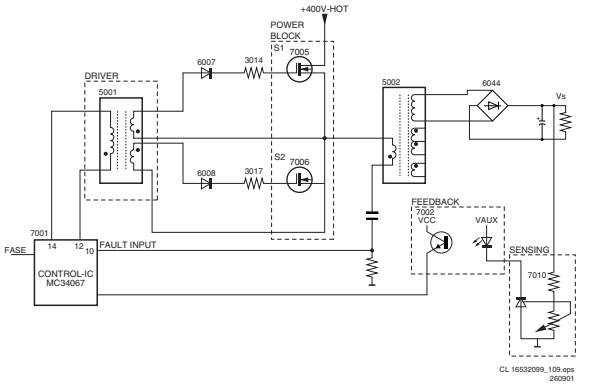


Figure 9-4 V_s supply

The start-up voltage for the IC is derived from one phase, the IC starts to oscillate, and alternately S1 and S2 are driven into conduction with a dead time in between. This effects that, via the resonance circuit and the MOSFETS, energy is stored into transformer L5002 (and L5004 for *FM24* and FM33).
The secondary voltages are rectified and smoothed, these voltages are, via a voltage divider, fed to the optocoupler that influences the oscillator frequency of the control IC and stabilises the secondary voltages. If the current becomes too high, the supply is switched "off" via the fault input of the control IC.

Advantages:
- High efficiency (more then 90%, other supplies 75%).
- Less radiation.
- Cost effective (two MOSFETS of 400 V cost less than one MOSFET of 600 V).

Disadvantages:
- Very low power stand-by impossible.
- Realisation and stabilisation is more complex.

Operation V_s Supply

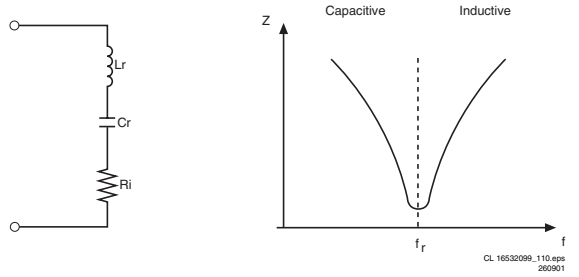


Figure 9-5 Impedance characteristic

General
The LLC supply is a serial resonance power supply. The coil, resistor, and capacitor form a trap at the resonance frequency f_r. The impedance is frequency dependent. The smallest impedance is at the resonance frequency (f_r), at the right side of f_r is the inductive part, and at the left side the capacitive part. The supply works in the inductive part, since higher frequencies causes minor losses.
Stabilisation is realised, by regulating the frequency as function of the output voltage (V_S_UNSW) and power. The load is stabilised by influencing the series-loop. The higher the frequency, the lower the output power.

The supply voltage of the control IC comes from the 25V_HOT voltage of the standby supply (via stabiliser 7093), and is lead to pin 15 of the IC. The IC starts to oscillate. This supply line has a short-circuit protection via opto-coupler 7003; when the

supply is regulating, the current through the opto-coupler is amplified and will deliver power to the IC.

Control is done in the usual way by a TL431 at the secondary side. Voltage V_rs, a control signal coming from the display, is mixed into the feedback voltage, using an additional TL431 (7011 at schematic P6). It influences the output of the V_s supply. The output voltage of the V_s supply varies according the following formula: V_s = 70 + (10 * V_rs). Via this stabilisation circuitry for V_s, the output voltage is stabilised. If necessary, it is possible to adjust the voltage via potmeter R3026 (not for FM33).
The V_s is fed via a voltage divider to IC7010 (TL431). If the voltage at pin 3 of IC7010 is higher than 2.5 V, a current will flow from cathode to anode. This current also flows through the secondary side of the optocoupler 7002. The voltage at pin 7 of the MC34067, determines the output frequency. The higher this voltage, the higher the output frequency. Thus, if the voltage on pin 7 increases, the frequency increases and V_s decreases.
When the output voltage rises, the voltage at the reference IC7010 also rises, this causes the current through the diode of the opto-coupler to rise. The transistor of the opto-coupler conducts more, because of which the voltage at pin 7 of the MC34067 increases.

Accurate Over Voltage Protection (OVP) is added, using a TL431 (7304, diagram P3) as reference/comparator and an additional optocoupler (7003) that acts on the fault input pin 10 of the MC34067P (see also "Power Supply Protections ").

The Controller
The MC34067P controller, is used for the following reasons:
- Zero voltage switching.
- Variable frequency oscillator (above 1 MHz).
- Precision one-shot timer for the dead time.
- 5 V reference output.
- Double, high current totem-pole output.
- Soft start.
- Wideband error amplifier.
- Fault input (protection).

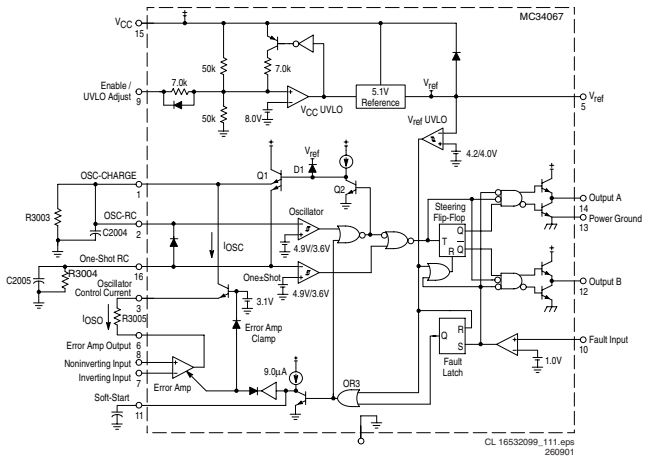


Figure 9-6 MC34067

The oscillator circuit is build around an internal comparator with two threshold-voltages: 4.9 and 3.6 V.
C2004 is first charged via transistor Q1. If the voltage across C2004 is more then 4.9 V, the output of the upper comparator becomes low, the NOR-port output will be high, and Q1 will be blocked because the base will be shortened by Q2. C2004 will be discharged via the resistors R3003 and the oscillator control current (I_osc).
If the voltage across C2004 is below the lower threshold (3.6 V), transistor Q1 is conducting and the capacitor is charged again. The oscillation frequency is modulated by the oscillator control current.
The discharge current increases, when pin 3 is loaded even more; thus the lower the voltage on pin 3, the higher the oscillator control current and the higher the frequency. The maximum frequency is reached when the output of the error amp is minimal (0.1 V). Thus, R3005 determines the maximum frequency.
The minimum frequency is reached, when I_osc current is zero: C2004 then discharges only via the resistor R3003.

One Shot Timer
The one-shot timer is present, to de-activate both outputs simultaneously, and to provide a dead time, so that only one output will be activated.
The one-shot capacitor (C2005) is first charged by Q1. The one-shot period begins when the oscillator comparator is switched "off" by Q1. The one-shot capacitor is discharged via the parallel resistance (R3004): if this voltage gets lower than the lower threshold of 3.6 V, the comparator will be high and controls the flip-flop, which makes one of both outputs high.
If Q1 is re-conducted through the oscillator comparator, the one-shot capacitor is re-charged.

Fault Detector Input
At pin 10, there is a fault detector input. If this voltage reaches 1 V, the output of the OpAmp goes high, and both drive outputs are switched "off".
In addition, the output of OR3 will be high via the "fault latch". The output of OR3 drives Q1, so both the oscillator and the one-shot-capacitor remain charged. Via OR3, the soft-start capacitor is discharged.

Soft-start
Due to the soft-start circuit, the oscillator starts with maximum frequency. The low voltage on the soft-start capacitor (C2027) is buffered and keeps the error amplifier output low (if I_osc = max then f_osc = max).
The capacitor is charged with a current of 9 uA, the output of the buffer gets high, and the error amplifier input takes charge of the oscillator control current.

Driver stage
The two secondary windings of the driver transformer control the two switching MOSFETs. The primary winding of the driver transformer is alternately controlled by the two totem-pole outputs of the controller. Cross-conduction of both MOSFETs is prevented by the dead time.
The gate of each MOSFET is controlled via diodes 6007/6008 and resistors 3014/3017.
The transistors 7007/7008 discharge the gate faster by switching "off" situations.
The diodes 6017/6028 at the base-emitter of 7007/7008 prevent the zener effect of these transistors.
The zener diodes at the gate-source of 7005/7006 are for ESD protection.
C2011 and C2014, form the capacity for the series resonant circuit.

MOSFET switching
The total switching time can be distributed over 12 phases with different current paths. Only four phases are discussed to simplify the explanation:

Phase 1 (S1 closed, S2 open)

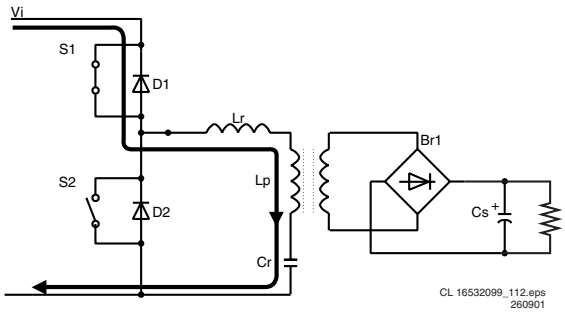


Figure 9-7 Phase 1 Resonance Supply

The gate of MOSFET 1 is positive, which causes S1 to close. The input voltage Vi of 400 V_dc provides a current flow through S1 and the series circuit. At the same time, a current flows through the rectifier diodes in the secondary winding, which will charge capacitor Cs.
The current through Lr starts negative, but it is increasing to change polarity.
Capacitor Cr is charged sinusoidal, while the voltage at Lr drops. This makes the current drop.

Phase 2 (S1 open, S2 open = dead time)

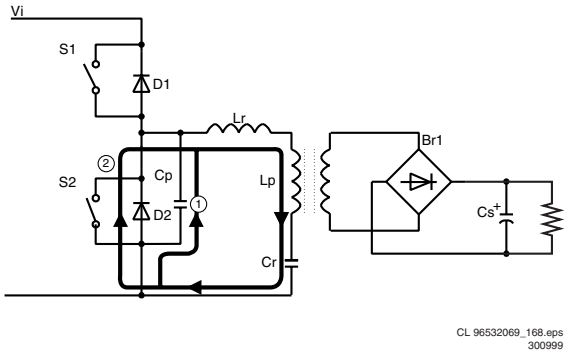


Figure 9-8 Phase 2 Resonance Supply

Before the current reaches zero, S1 is opened. Now, both MOSFETs are not conducting. However, the current through the coils wants to continue. The capacity Cp releases its load to the series circuit, and the voltage at Cr continues to rise (Cp is the sum of several parasitic capacities).
1) The voltage at the drain of MOSFET 2 drops, because Cp is discharged at this moment [1]. This causes a voltage inversion across Lr and Lp. The secondary winding begins to feed back, charging capacitor Cs.
2) The voltage becomes negative, and diode D2 starts to conduct [2]. The secondary bridge remains conducting.

Phase 3 (S1 open, S2 closed)

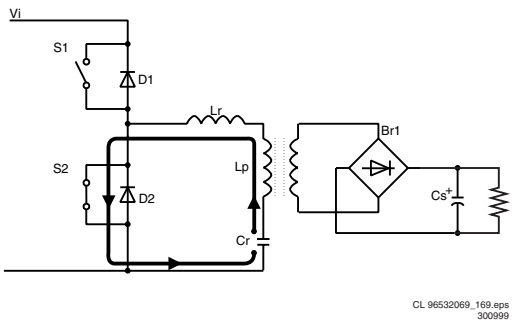


Figure 9-9 Phase 3 Resonance Supply

The gate of MOSFET 2 is becoming high. The current through D2 is taken over by MOSFET 2. The switching losses are negligible, because the voltage across the switch is now approximately 1 V.
The current through Lr starts negative, but is increasing to change polarity. A current flows through MOSFET 2 and the series circuit. The bridge remains conducting, but its current gets zero because of the decreasing voltage across Lp. This is caused by the discharge of capacitor Cr. The voltage at capacitor Cr is decreasing sinusoidal and so is the voltage across Lp and Lr.

Phase 4 (S1 open, S2 open = dead time)

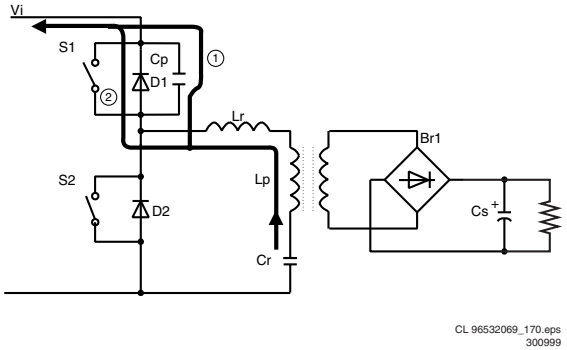


Figure 9-10 Phase 4 Resonance Supply

Before the current reaches zero, S2 is opened. Now, both MOSFETs are not conducting, but the current through the coils wants to continue. The capacity Cp releases its load to the series circuit, and the voltage at Cr continues to fall (Cp is the sum of several parasitic capacities).
1) The voltage at the drain of MOSFET 2 increases, because Cp is discharged at this moment [1] (Cp was charged to 400 V). This causes a voltage inversion across Lr and Lp. The secondary winding begins to feed back, charging capacitor Cs.
2) The voltage becomes higher than 400 V, and diode D1 starts to conduct [2]. The secondary bridge remains conducting.

Protections MC34067

Over Current Protection (OCP)
The voltage at R3021 is a criterion for the current, which flows through the primary winding. Via C2015 and D6010, the negative information is clamped at -0.6 V. The total amplitude is rectified via D6009 and C2010, and via R3020 and TS7009 supplied to the fault input (pin 10) of the controller.
When the fault input is higher than 1 V, the protection is activated.

Over Voltage Protection (OVP)
The voltage at R3010 is the take-over-winding voltage. This voltage is also supplied to pin 10 of the controller via a voltage divider R3010/R3011 When the fault input is higher than 1 V, the protection is activated.

Soft-start Over Current Protection
If short-term over current peaks occur, the frequency is adapted. The voltage at R3021 is clamped at -0.6 V via C2015 and D6010. The total amplitude is rectified via D6011 and C2008, and supplied to the "thyristor" TS7017/18 via R3012. When the voltage at the emitter of TS7017 gets higher than 5 V, the soft-start capacitor C2027 is discharged and the frequency increases. Because of this, the V_s will drop. If this voltage remains 5 V, the supply is interrupted (hick-up).
This circuit is adjusted in such a way, that the voltage does not drop too much if a flash occurs.

9.2.7 Aux. Supply (Diagram P7)

The "Aux. Supply" part hosts the supplies that are derived from the V_s supply:
- V_a supply.
- V_cc supply.
- 3V3 supply.
- Audio supply (V_SND_POS and V_SND_NEG).

Note:
In the FM24 monitor, a circuit is added (around 7143, 7144, and 7145), which takes care that the V_a and V_s supplies are discharged immediately after set switch "off". This to prevent discharge spikes of the elcaps. The circuit will ground the supply voltage of IC7112 as soon as its trigger line (+9V_STBY_SW) is switched "off".

V_a Supply
The V_a voltage is derived from the V_s voltage via the "down converter" principle. Control IC TEA1507 (item IC7112) and MOSFET TS7117 are used.

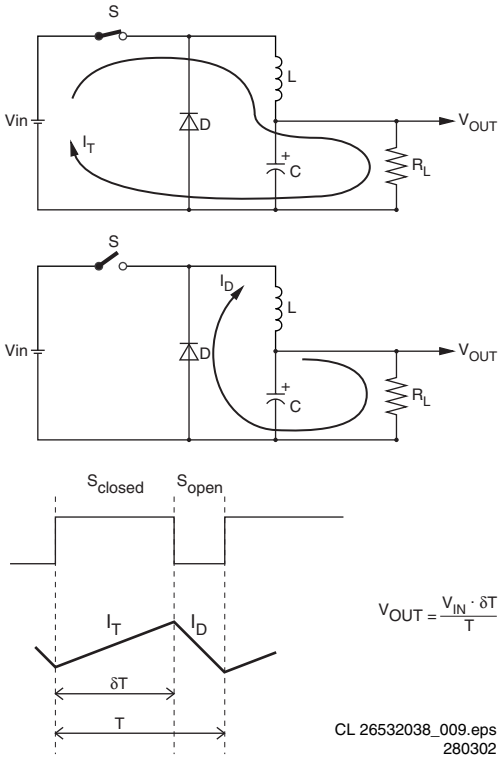


Figure 9-11 Principle of Down Converter

After closing switch "S", the linear in time increasing current I_T will charge capacitor C.
Opening switch "S" will generate a counter-e.m.f. (= reverse voltage) in coil L, trying to maintain current I_T. This is possible via diode D (this diode is also called "freewheel diode").
Therefore, after opening "S", the magnetic energy stored in coil L will be transferred to electrostatic energy in capacitor C. The V_in will only supply current during the time that "S" is closed while a constant current is flowing through R_L.
V_out is directly proportional with V_in and the time that "S" is closed, and reverse proportional with period time "T".
Therefore, by changing the duty cycle, it will be possible to control V_out.
To apply this on this chassis (diagram P7): replace switch "S" by FET TS7117, coil L by L5120 (or L5121 for the FM33), diode D by D6120, C by C2121, V_in= 77-100V, and V_out= V_a.

Stabilising is done in the same way as for the V_s supply. Voltage V_ra , coming from the display, is mixed into the feedback voltage using an additional TL431 (item 7130). This influences the output of the V_a supply. The output voltage of the V_a supply varies according the following formula: V_a = 30 + (20 * V_ra).

V_cc Supply
This part delivers, besides the V_cc voltage, also +12V (+10V for the FM33) for the optional fan control and, derived from this voltage, an +8V6 (for small signal analogue circuitry).
The V_cc voltage is derived from the V_s voltage via the flyback converter principle. Control IC TEA1507 (item 7212) and MOSFET 7217 are used.

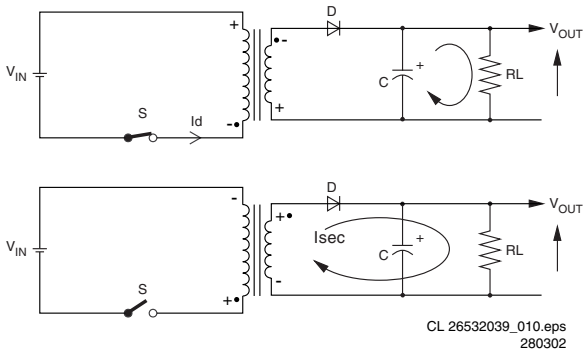


Figure 9-12 Principle of Flyback Converter

After closing switch "S", the current I_D will increase linear in time. The magnetic energy in the primary coil is directly proportional with the self-inductance of the coil and current I_D (thus with the time the switch is closed).
The voltage polarity at the secondary winding is negative (due to different winding direction), meaning that diode D will block. Capacitor C will discharge via R_L, and V_out will decrease.
Opening switch "S" will generate a counter-e.m.f. in the primary winding, trying to maintain current I_D. Through this the polarity of the secondary voltage will inverse. The magnetic energy, stored in the coil, will now be transformed to the secondary side. Diode D will now conduct, capacitor C will be charged and V_out will increase.
To apply this on this chassis (diagram P7): replace switch "S" by FET TS7217, coil L by L5220, diode D by D6224, C by C2224, V_in= V_S_UNSW, and V_out= V_cc.

Note: While in the *FM23 and FM24* the +12V is derived via the flyback converter principle, in the FM33 this is done via a voltage doubler circuit.
The negative side of C2229 has an average voltage level of 0 V as it is connected to the secondary side of L5220. Its positive side is connected to the +5V (V_cc). When diode D6225 conducts, there will be +5.5 V on its anode (+5 V plus the forward voltage). This means that there will be +10.5 V at the positive side of C2229. The resulting voltage over C2230 will be +10 V (+10.5 V minus the diode forward voltage of D6230).

3V3 Supply
The +3.3 V is generated to supply the SCAVIO panel. This voltage, is directly derived from the LLC supply (diagram P6):
- FM23: Via a fuse (1005/1045), this voltage is rectified by diodes 6021/6045 and smoothed by C2022 (+18V line). Via control IC L4973V (item 7260, diagram P7), the 3V3 voltage is generated. This IC contains a complete down converter, with integrated MOSFET.
- FM24: Via a fuse (1005/1045), this voltage is rectified by diodes 6021/6045 and smoothed by C2022 (+15V line). Via control IC L4973V (item 7260, diagram P7), the 3V3 voltage is generated. This IC contains a complete down converter, with integrated MOSFET.
- FM33: Via a fuse (1082/1083), this voltage is rectified by diodes 6021/6045 and smoothed by C2022 (+9V line). Via control IC L6910 (item 7260, diagram P7), the 3V3 voltage is generated. This IC contains a complete down converter, with integrated MOSFET. This IC has a better efficiency

compared to the L4973V that is used in the *FM23 and FM24*.

All these circuits use double diodes per voltage, in order create a symmetrical load for the transformer.

Audio Supply

This is a "floating" symmetrical supply (±14.5 V) derived from V_s via transformer 5290. Because this voltage is tightly coupled to the V_s voltage, this voltage varies considerable, between 11 V (max. load, V_s = 70 V) and 20 V (min. load, V_s = 90 V).

The Audio ground is connected to the normal secondary ground, with a capacitor (C2290) and a resistor (R3292) in parallel, in order to suppress spurious oscillations.

9.2.8 Power Supply Protections (Diagram P3)

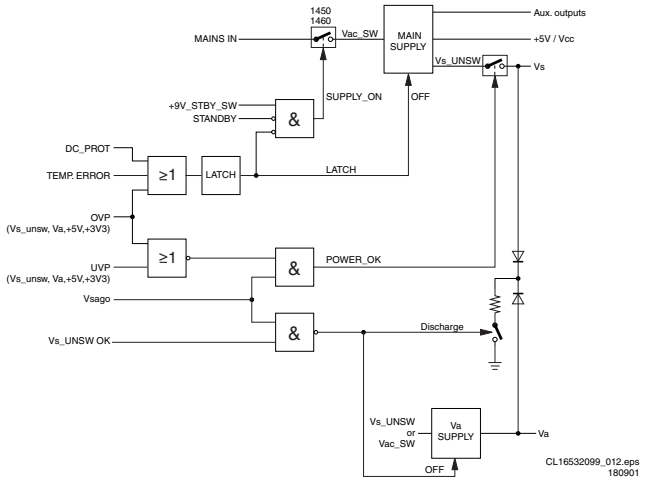


Figure 9-13 Protections

In general, all efforts are taken, to make a safe power supply. Therefore, all major outputs are monitored with respect to over- and/or under voltage. All protections are handled by hardware. The software only monitors the hardware to generate error codes for service.

Via I2C, errors of the power supply are transmitted to the microprocessor on the SCAVIO panel. If an error occurs, the POWER_OK line will change from "high" to "low". The errors are transmitted to the microprocessor, on the following ports and pin numbers of the I/O expander PCF8574AT (item 7370):

Table 9-2 IC7370 Inputs

Pin	Name	Description
4	V_s	Detection of under- or overvoltage on V_s
5	V_a	Detection of under- or overvoltage on V_a
6	+5V	Detection of under- or overvoltage on +5V
7	+3V3	Detection of under- or overvoltage on +3V3
9	OVP	Detection of overvoltage on V_s, V_a, +5V or +3V3
10	Switch	Detection of functional switch
11	DC_PROT	Detection of DC_PROT going high
12	TEMP	Detection of over temp. inside power supply

This POWER_OK signal is connected to an interrupt pin of the OTC, in order to be read as fast as possible. This is very important in case of a time-limited error like over-voltage. After detection of the error, the control system will log the error in NVM, and transmit the first occurrence back to the power supply through the I2C bus.

Note: The POK signal is fed to buffer 7366, together with the "8V6_UNDER_VOLTAGE" and "SWITCH" sensing. The output of this buffer, the POWER_OK line, will follow the inputs.

Operation

V_s Protection

Detection of over- or under voltage on V_S_UNSW by comparators IC7308-A and -B. If this voltage exceeds certain levels (set via voltage dividers), the protection will activate the Power OK (POK, active "low"), which will shut down the set.

V_a Protection

Detection of over- or under voltage on V_a by comparators IC7308-C and -D. If this voltage exceeds certain levels (set via voltage dividers), the protection will activate the Power OK (POK, active "low"), which will shut down the set.

V_cc Protection

Detection of over- or under voltage on V_cc (+5 V) by comparators IC7330-A and -B. If this voltage exceeds certain levels (set via voltage dividers), the protection will activate the Power OK (POK, active "low"), which will shut down the set.

+3V3 Protection

Detection of over- or under voltage on the +3V3 voltage by comparators IC7330-C and -D. If this voltage exceeds certain levels (set via voltage dividers), the protection will activate the Power OK (POK, active "low"), which will shut down the set.

OVP protection

This line detects, if one of the above mentioned voltage protections is an over-voltage protection. Therefore, this works in combination with the above-mentioned under/over voltage protections.

Latch Protection

When an OVP-, DC-, or Temperature protection occurs, thyristor 6348 is fired and the LATCH signal is made "low". This signal will switch "off" the main supply and prevents that the supply is switched "on" again, as long as the protection is active.

In addition, the V_cego signal can activate the LATCH signal (via TS7352 and 7348), but this is temporarily. This is done for correct start-up behaviour.

DC Protection

Detection of a DC voltage on the audio amplifier outputs. If a DC voltage is detected, TS7362 will activate the Power OK (POK, active "low"), which will shut down the set.

Temperature Protection

- *FM23 and FM24*: Detection of the temperature (via PTC 3368) in the power supply by comparator IC7366-A. If this voltage exceeds a certain level (set via voltage dividers), the protection will activate the Power OK (POK), which will shut down the set.
- *FM33:* via an I2C temp sensor IC7372. This LM75A is a temperature-to-digital converter using an on-chip temperature sensor, and provides an Over-temp Shutdown (OS) output. It communicates via I2C. The device is powered-up in normal operation mode with the OS in comparator mode, temperature threshold of 80 °C and hysteresis of 75 °C, so that it can be used as a stand-alone thermostat with those pre-defined temperature set points.

9.3 VGA Connector Panel (Diagram VGA)

The Video Graphics Array (VGA) panel serves as an interface between the peripheral VGA equipment (Receiver box, PC, etc.) and the SCAVIO panel. Some specifications of this panel:

- Two NVMs are present, which hold identification data for the DDC line.
- Further, there are buffers present for the incoming and outgoing sync signals.
- RC_OUT cinch for linking with other equipment.
- Provision to terminate the incoming sync lines with 75 Ohm via the EBOX_PRESENT line.

For a description, see the next "SCAVIO" chapter.

9.4 SCAVIO Panel (Diagrams SC)

The Scaler Control Audio Video Input Output (SCAVIO) panel contains:

- All the input connectors,
- Analogue and digital video processing,
- Scaler (co-processor)
- Interface to the PDP,
- Audio processing (excluding the audio amplifier),
- OTC (main processor), and
- RS232C in/out.

Note: There are two versions of this panel, a *Basic* and an *Enhanced* version. Therefore, many components are not mounted for the *Basic* version.

For the circuit description, we divide the board into the following parts:

1. Supply
2. Video processing
3. Audio processing
4. Control

9.4.1 Supply

See figure "Power Supply Path" in paragraph "Power Supply 9.1.5".

9.4.2 Video Processing (Diagrams SC3, 4, 5, 6, 10, 11 and 12)

Introduction

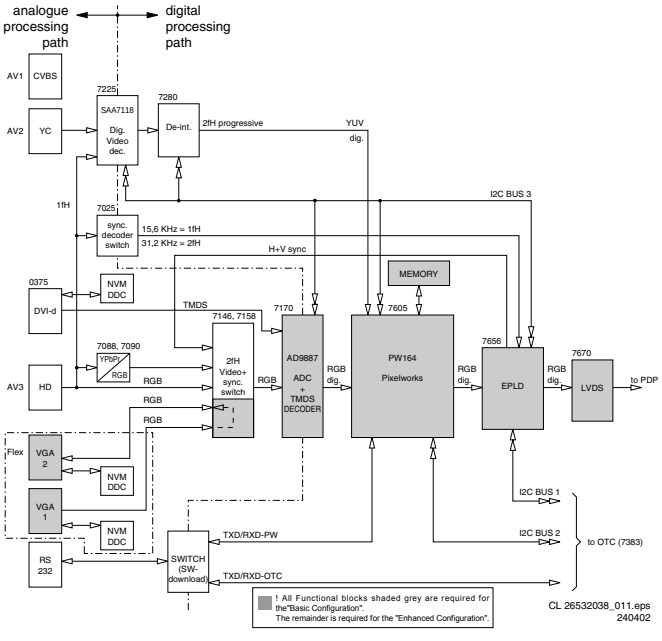


Figure 9-14 Video path

This mainly consists of a small analogue processing part and a bigger digital signal processing part.
The video inputs like CVBS, YC, High Definition RGB, or YUV (1fH and 2fH), VGA, and DVI-D are received and processed.
The YPbPr (2fH) is discretely converted to RGB, whereas the YCbCr (1fH) is processed in the SAA7118 Digital Video decoder. The base-band video inputs (CVBS and YC) are output from the digital video decoder as digital YUV, which are then further processed by the Pixel Works Scaler.
The VGA signals are first AD converted and then processed by the PW Scaler.
The digital input on the DVI is first decoded by the TMDS decoder inside the AD9887 and then processed by the PW Scaler.
The PW Scaler output is going through an EPLD and then via the LVDS transmitter to the PDP (Plasma Display Panel) as differential serial data. The PDP is based on ALiS (Alternate Lighting of Surface) technology and is an interlaced display, with separate ODD and EVEN fields to be displayed.

Analogue Video

This part describes the analogue video and synchronisation path of all inputs, until it reaches the "analogue digital converters" of either the AD9887 (ADC+TMDS Decoder) or the SAA7118E (Digital Video Decoder).
In addition, the switching part is described and the necessary control signals.
In principle, all video control functions are done by the Pixel Works processor.

Note: This part also includes the VGA connector panel that is mounted on top of the SCAVIO panel.

Inputs

There are five video inputs, which are divided in three types:

- **VGA** (2fH): named VGA1 and VGA2. Both are 15-pole SUB-D connectors for RGB and HV, and are situated on the VGA connector panel. For automatic identification by a PC, each VGA input is foreseen with a DDC NVM IC. VGA2 is set default as loop through of VGA1. In the *Enhanced* version, VGA2 can be switched as output, via the control signals VGA2_OUT and VGA2_EN.
- **YPbPr/RGB** (combined 2fH and 1fH): named AV3 and suitable for YCbCr/HD-YPbPr/HD-RGB + HV. These are cinch inputs. YPbPr and RGB are seen as separate inputs by the HW and must be properly selected by SW.
- **CVBS** like (1fH): named AV1 for CVBS and AV2 for Y/C. These are also cinch inputs.

Video Path

The 1fH signals (including YPbPr) are buffered (item 7113/21/17) and go directly to a digital video processor, the SAA7118E (item 7225 on diagram SC5), where they are converted into a digital signal.

The 2fH signals are also buffered; both YPbPr (item 7074/84/79) and RGB (item 7141/38/35) buffers get the same input signals.
When YPbPr signals are connected, the correct input must be selected, to get a picture with proper colours. Thus, the signals must pass a video matrix (item 7088/90, see diagram SC3), where they are converted into RGB. There are two matrices, an NTSC and an ATSC. With the MATRIX_SEL signal, the correct matrix is chosen (item 7089). The detection is done automatic, by an algorithm in the EPLD.
After the matrix, the signals enter a clamp/blanking circuit (7102/03/04 and 7100), for the removal of the residual sync signals. The control is done via the lines HD_BLANKN and HD_CLAMPN coming from the EPLD.

All RGB signals come together at 4-pole switches (item 7146/58), one for each colour, where they are switched to the AD converter item 7170 (R_ADC, G_ADC and B_ADC).

Sync Path
All incoming H and V sync signals go to a 4-pole switch (item 7009) where SYNC_SEL and VIDEO_SEL_2 determine, which signal is available on the ADC.
Before this switch, the VGA sync path is rather straight, only 1 switch (item 7007) is added for the VGA2 sync signals, which determines if VGA2 sync is input or output (VGA2_OUT).
In the *Basic* configuration, these switches are omitted, and replaced by jumpers (4009/4010).

The external sync (AV1 - 3) signals are treated differently. Both H_HD_EXT and V_HD_EXT go to three circuits:
- A comparator circuitry with an LM319 (item 7025), to ensure both sync pulses are always positive going (H and V_SYNC_CMP),
- A level detection circuitry (items 7000 to 7002), to detect if the sync is of TTL level (H and V_SYNC_TTL),
- A positive/negative going detection circuitry (items 7006 to 7010), to indicate the polarity of the sync in case of TTL level (H and V_SYNC_POL_N).

All above-mentioned signals go to the EPLD (see diagram SC11) for further processing.

Processed sync signals H_HD and V_HD coming from the EPLD, are also switched to the ADC (H_ADC and V_ADC) along with the proper RGB signals (R_ADC, G_ADC and B_ADC).

Digital Video
This part describes the digital video path on the SCAVIO panel, starting at the AD converters in either the AD9887 (item 7170) or in the SAA7118E (item 7225) and ending at the output for the PDP.
For both the *Basic* as the *Enhanced* version, everything "after" the Pixel Works chip, is equal.
For the *Basic* version, the input for the Pixel Works only consists of the "Graphics path".
For the *Enhanced* version, it is both the "Graphics path" as the "Video path".

The SCAVIO panel contains the following functions in the video path:
1. The "YPbPr to RGB matrix" and "2fH Video+Sync Switch" are explained above in the "Analogue Video" part.
2. The "Digital Video" path containing the Digital Video Decoder and the De-interlacer.
3. The "Digital Graphics" path containing the ADC+TMDS decoder.
4. The "Scaler" which is the Pixel Works (PW164-10R) plus Memory.
5. The "EPLD" for sync decoding and video manipulation.
6. The "LVDS" encoder.

The Digital "Graphics Path"
This is a straightforward application of the Analogue Devices AD9887 (item 7170). Inputs for this device are:
- FTV Receiver box,
- VGA formats (up to SXGA at 75 Hz),
- 2fH RGB+HV (only in *Enhanced* version),
- 2fH YPbPr, which is converted to RGB by the "YUV to RGB" matrix (only in *Enhanced* version),
- DVI-d (only in *Enhanced* version).

Analogue input: The AD9887 is meant to sample "pixel synchronous". To achieve this, a (software) driver is running on the Pixel Works processor (PW). After hooking up a source to the AD9887, the PW starts counting the number of lines per field and calculates the H-period time. With these two values, it determines the exact match or the closest match out of a look-up-table (LUT) with VGA standards. When the correct standard is determined, the PW will set the AD9887 I2C registers to the correct value. The AD9887 should now sample with exact the same frequency as the incoming standard requires. This is done to get an optimal picture performance.
It also is a "must" when a computer graphics card is connected, because there is no, or very little, post anti-aliasing filtering done on such cards. Therefore, the outputted RGB samples need to be exactly aligned with the sampling of the AD converter.
Analogue input signals can go up to "SXGA at 75 Hz" format, which gives a pixel clock of 135 MHz. In fact, it can handle any standard with a pixel rate up to 140 MHz.
Special modes are made for the F21R E-box, for both PAL and NTSC. These are invoked when an E-box is connected to the SCAVIO panel.

Digital input: Via the DVI connector (*Enhanced* version only) it is possible to insert TMDS (Transition Minimised Differential Signalling) data into the SCAVIO panel. DVI is a fairly new computer graphics standard, which can be seen as the digital follow-up of the analogue VGA interface. The TMDS signal is directly fed into the AD9887, where any DVI standard up to "SXGA at 60 Hz" can be decoded to RGBHV.
The preferred VGA standard for this chassis is programmed in the DDC EEPROM (item 7215), which can be read by the PC. Via an internal switch, it is possible to choose between the analogue input and the digital input. The output format is for both inputs the same (8 bit RGB plus HV). The driver determines whether the AD9887 outputs single or dual pixels. For lower standards like "VGA at 60 Hz", the interface will be single pixel, which means that every clock cycle one byte of R, G, and B data is outputted. Dual pixel means that on every clock cycle two bytes of R, G, and B data outputted. These two bytes are de-multiplexed, which is done to make the interface more robust for jitter, set-up, and hold times, and to reduce the digital data rate over the PCB (reduced EMC).

Digital "Video Path"
This path is only available in the *Enhanced* version of the SCAVIO panel and is used for the following input signals:
- CVBS input,
- Y/C input, and
- 1fH YPbPr.

It is a straightforward application of the Philips SAA7118 (item 7225) and the Micronas SDA9400 (item 7280).
The SAA7118 is a PAL/NTSC/SECAM Digital Video Decoder with adaptive digital comb filter and component video input. It decodes all input standards to 4:2:2 YCbCr, which then is processed by the SDA9400.

The SDA9400 is a motion adaptive de-interlacer, which makes a progressive video signal from the interlaced input. Depending on the motion in the picture, it will just interleave the odd and even field (no motion: ABAB) or repeats the same field twice; this is also known as line doubling (motion: AABB). The motion detection is pixel based, with a soft-switch between "motion" and "no motion".

After the de-interlacer, the signal is fed as a 4:2:2 YCbCr progressive scan signal to the video port of the Pixel Works processor.

The Pixel Works PW164 Scaler
The Pixel Works PW164 Image Processor is a highly integrated (Ball Grid Array, BGA) chip, which interfaces video inputs and computer graphics in virtually any format to the PDP.

Computer images from VGA to UXGA resolution input to the chip can be resized to fit on the PDP. Horizontal and vertical image scalers, coupled with intelligent frame locking circuitry create sharp images, centred on the screen and without user intervention. An embedded DRAM frame buffer and memory controller perform the frame rate conversion.

Video data from 4:3 aspect ratio NTSC or PAL and 16:9 aspect ratio sources such as HDTV and DVD are supported. Non-

linear scaling (only with Receiver Box) and separate horizontal and vertical scalers allow these inputs to be resized optimally for the native resolution of the PDP.

For more information, see *http://www.pixelworksinc.com/index.phtml*

Table 9-3 Pixel Works Scaler: Ports

Pin	Name	I/O	Remark
C2	PW_SCL	+3V3 out	to I2C devices, Video related
B1	PW_SDA	+3V3 out	to I2C devices, Video related
A1	PW_SDA_NVM	+3V3 out	to I2C device NVM
C4	PW_SCL_NVM	+3V3 out	to I2C device NVM
B3	VGA2_OUTN	+3V3 out	Selects VGA 2 as output. (Low => Output)
A2	VGA2_EN	+3V3 out	Enables VGA 2 (High = Enable)
A3	VIDEO_SEL_1	+3V3 out	to video selection switches (see truth table)
C5	VIDEO_SEL_2	+3V3 out	to video selection switches (see truth table)
B4	SCL_2	+3V3 out	to I2C device OTC
A4	SDA_2	+3V3 out	to I2C device OTC
C6	SYNC	Input	Is 'high' if EPLD detects separate sync signals on YPbPr
B5	1_2FH	Input	Is 'high' if sync on YPbPr is 1fH (from EPLD)
D6	SYNC_SEL	+3V3 out	To sync selection switches
A5	FBX_MODE	Input	Is 'high' if E-box is detected

Table 9-4 Pixel Works Scaler: Video Select

VIDEO_SEL_1	VIDEO_SEL_2	Selected input for AD9887
0	0	RGB 2fh
0	1	YPbPr 2fh
1	0	VGA 1
1	1	VGA 2

Service remark: Desoldering/soldering of this IC requires very specialised (BGA) equipment. This can only be done by the Authorised Service Centres (ASC).

The EPLD
The main reason to add the EPLD is the contrast reserve function. Other reasons:
- **Black and white ADC adjustment.** The EPLD provides a high-resolution measurement of the black and white level, to adjust the gain and offset of the ADC (AD9887). It is read via I2C.
- **LVDS reset.** This function resets the LVDS transmitter on the SCAVIO board, in case the LVDS transmitter starts up without a clock. This could cause an abnormal picture. Therefore, as soon as the clock is not fast enough (as during start-up) the EPLD will keep the LVDS transmitter in reset.
- **Receiver-box mode detection.** For loop through mode (a second FTV monitor connected to the output of the first monitor), a secondary detection is needed to check the presence of an Receiver or E-box.
- **ATSC sync detection/ decoding.** Core for proper sync decoding for ATSC sources.
- **Contrast reserve.** This function can increase the gain of the video signal to a factor of two. It will reduce the gain again if it sees too many overflows (code 255) in any of the R, G, or B channels. Adjustable via two parameters: user contrast and overflow limit. Parameters are I2C controlled.

The LVDS transmitter
This DS90C385MTD56 IC from National Semiconductors converts 28 bits of CMOS/TTL data into four LVDS (Low Voltage Differential Signalling) data streams. A PLL transmit clock is transmitted in parallel with the data streams over a fifth LVDS link. Every cycle of the clock, 28 bits of input data are sampled and transmitted. At a transmit clock frequency of 36 MHz, 24 bits of RGB data and 3 bits of display control data are transmitted per LVDS data channel. This IC operates at 3.3 V

For more information, see *http://www.national.com/pf/DS/DS90C385.html#Datasheet*

Picture Mute
In some cases, it is necessary to mute the video output:
- In monitor mode:
  - During switch "on/off" of the monitor,
  - During source change,
  - During video or sync loss, or
  - By a user action (A/V-mute or mute)
  - In audio only mode (when the ICONN-box is connected).
- In TV mode:
  - During switch "on/off" of the Monitor/Receiver box,
  - During source change in the Receiver box,
  - During video or sync loss, or
  - In audio only mode (Receiver box mutes the picture).

Most of the picture mute controls are done via the Pixel Works co-processor.

Anti Ageing
In order to prevent visible luminance differences, due to ageing of the monitor, a special algorithm is implemented. This algorithm is based on horizontal shifting of the picture in the monitor. For good understanding some terms will now first be explained:
- **Ageing:** The effect that the efficiency of a plasma cell (pixel) decreases as a function of the total time that it is illuminated. This effect occurs mostly because of phosphor ageing. As a result, the cell brightness decreases over time. An alternative name for ageing is "burn-in".
- **Picture shifting:** Fixed structures, like logo's, OSDs, and subtitles, will cause burn-in effects. The only way to mask this to a certain extends, is picture shifting so that the "burn-in" effect is smeared out over a larger area, and makes it less visible.

Most of the anti-ageing controls are implemented in the Pixel Works co-processor.

Horizontal
Horizontal anti-ageing steps:
- **Step width/height,** the step width/height shall be 1 horizontal pixel width (approx. 1 mm).
- **Number of steps,** the maximum number of steps in horizontal direction shall be 9.
- **Time between steps,** the time between the steps shall be 5 minutes.

The effect of H anti-ageing is a horizontal movement (start at 0):

$$0 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 4$$
$$12 \leftarrow 11 \leftarrow 10 \leftarrow 9 \leftarrow 8 \leftarrow 7 \leftarrow 6 \leftarrow 5 \leftarrow$$
$$\rightarrow 13 \rightarrow 14 \rightarrow 15$$

With the following sequence:
$0 \rightarrow 1 \rightarrow 2 \rightarrow \ldots\ldots \rightarrow 14 \rightarrow 15 \rightarrow 0 \rightarrow 1 \rightarrow$ etc.

After every step, the updated value is stored in NVM and gives an indication about the direction (0...4 and 13...15 to the right and 5...12 to the left).

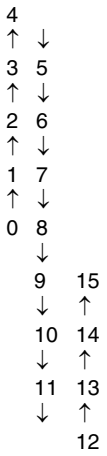
The horizontal anti-ageing is a process, which is basically independent of any other processes that are running in SW. This means that this process should never be reset in order to get the best anti-ageing effect. Therefore, the horizontal shift positions and directions need to be stored in NVM, so that he anti-ageing process returns to its latest position after the set has been switched off or to standby. There is only one H and one V shift value for the anti-ageing process that is applicable for the AV1, AV2, and AV3 inputs.

Note: Horizontal shift cannot be done for sources that are screen filling and do not have sufficient overscan.

Vertical
V-shift is done in the F21RE Receiver box when the TV mode is active, or in the *enhanced* configuration when the monitor mode is active.

Vertical anti-ageing steps:
- **Height/height,** the height/height shall be one display line (approximately 1 mm).
- **Number of steps,** the maximum number of steps in vertical direction shall be nine.
- **Time between steps,** the time between the steps shall be 80 minutes, which equals one complete horizontal ageing shift (16 steps x 5 minutes).

The effect of V anti-ageing is a vertical movement (start at 0):



With the following sequence:
$0 \rightarrow 1 \rightarrow 2 \rightarrow ..... \rightarrow 14 \rightarrow 15 \rightarrow 0 \rightarrow 1 \rightarrow$ etc.

After every step, the vertical shift position and its direction are stored in NVM. So the anti-ageing process returns to its last position after the set has been switched off (or to standby). Also, if by any cause (i.e. VGA-source selection or when service/factory mode is active), the anti-ageing process is stopped; the vertical shift position should be restored after resuming the anti-ageing process.

9.4.3 Audio processing (Diagrams SC13, 14 and 15)

This chapter describes the audio **processing** on the SCAVIO board. The circuit enables to connect several audio sources, selects the source on the desired input, and performs audio processing and audio delay. It also matches the output signals for the Audio Amplifier panel.
The sound-related electronics are very straight forward, and consists of a Micronas MSP3415G sound processor, an active high pass, and low pass filter, and separate Class-D amplifiers for the woofers and tweeters.

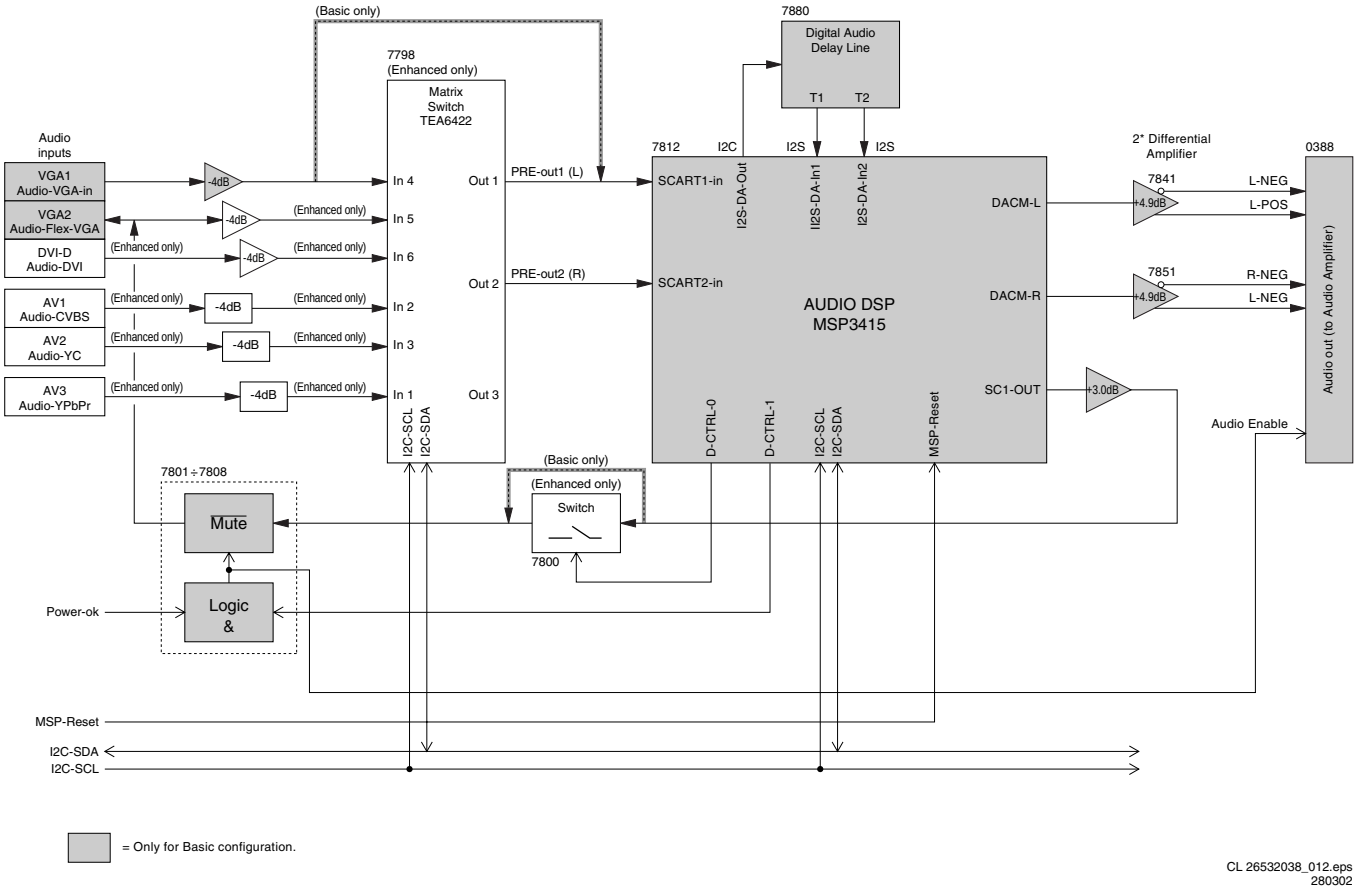


Figure 9-15 Audio Path

The processing part consists mainly of the following components:

- **MSP3415G**: a DSP sound processor from Micronas. This component is able to do all kinds of digital signal processing like volume, bass/treble, Ultra Bass, and balance. It has analogue inputs and outputs, as well as an I2S in/output used for digital audio delay.
- **RAM** with its logic to be able to store the I2S information for audio delay.
- **Anti-plop/ mute circuit:** which is necessary to prevent disturbances on the audio lines during start-up or switching.
- **TEA6422:** a matrix switch of ST. This component is able to switch six inputs to three different outputs (only used in the Enhanced version).

MSP3415G

Ultra Bass
Because of the closed box implementation in this FM-chassis, a common DBE solution will not give an optimal bass performance. A closed box needs a substantial boost over a wide frequency range, while DBE operates in a limited frequency region.
Adaptive Ultra Bass 2 (UB2) is a suitable alternative. This feature is based on the psycho-acoustic effect of the missing fundamental, and gives the impression of a deep bass, while the loudspeakers do not reproduce these low frequencies. This feature is implemented in the MSP3415G. In the FM-chassis, this feature is always switched "on".

Audio delay
To compensate for "lip sync error" (the difference in time between the aural and visual perceptions), two different audio delays are selectable via the customer's menu (one for the Receiver box and one for the Monitor).
This is done at the audio processor IC7812 via an I2S bus and an additional delay circuit (IC7880 - 7882).
One can select delays of 24 ms (I2S_DATA_IN1) and 40 ms (I2S_DATA_IN2), or no delay.
In case of a delay, the AUDIO_L/R_IN is re-routed as I2S_DATA_OUT to the audio delay circuit and, depending on the selected delay, returned as I2S_DATA_IN1 or I2S_DATA_IN2, resulting in AUDIO_L/R_OUT.

Anti-plop/Mute
In several cases, it is necessary to mute the sound output. This muting is handled by the MSP sound processor, or by the Receiver box in case of TV-mode.

- In Monitor mode:
  - During switch "on/off" of the monitor.
  - During source change.
  - During video or sync loss, or
  - By a user action (A/V-mute or mute).
- In TV mode:
  - During switch "on/off" of the Monitor/Receiver box.
  - During source change in the Receiver box.
  - During video or sync loss, or
  - By a user action (mute).

9.4.4 Control (Diagrams SC7, 8 and 9)

Introduction

As a main controller, the so-called ARTISTIC is used, better known as OTC (**O**n screen display, **T**eletext and **C**ontrol). It is a 8051 (XA) based controller from Philips Semiconductors, the SAA5801H.
Although the OTC is the main controller, it acts as a "slave" when communicating with the Pixel Works IC via the I2C-bus 2.

When the monitor is connected to an F21RE Receiver box, the UART commands from the Receiver box will control the monitor.

In stand-alone mode, the monitor can be controlled via the Remote Control or via the RS232C port.

DDC1/2B (Display Data Channel, an I2C based protocol) is implemented with separate NVMs for the two VGA inputs and the DVI-D input as well.

It is also possible to use the RS232C port for software upload to the PW Scaler and the OTC. The target for downloading is controlled via a switch in the RS232C path; the switch itself is controlled by the OTC.

OTC Processor

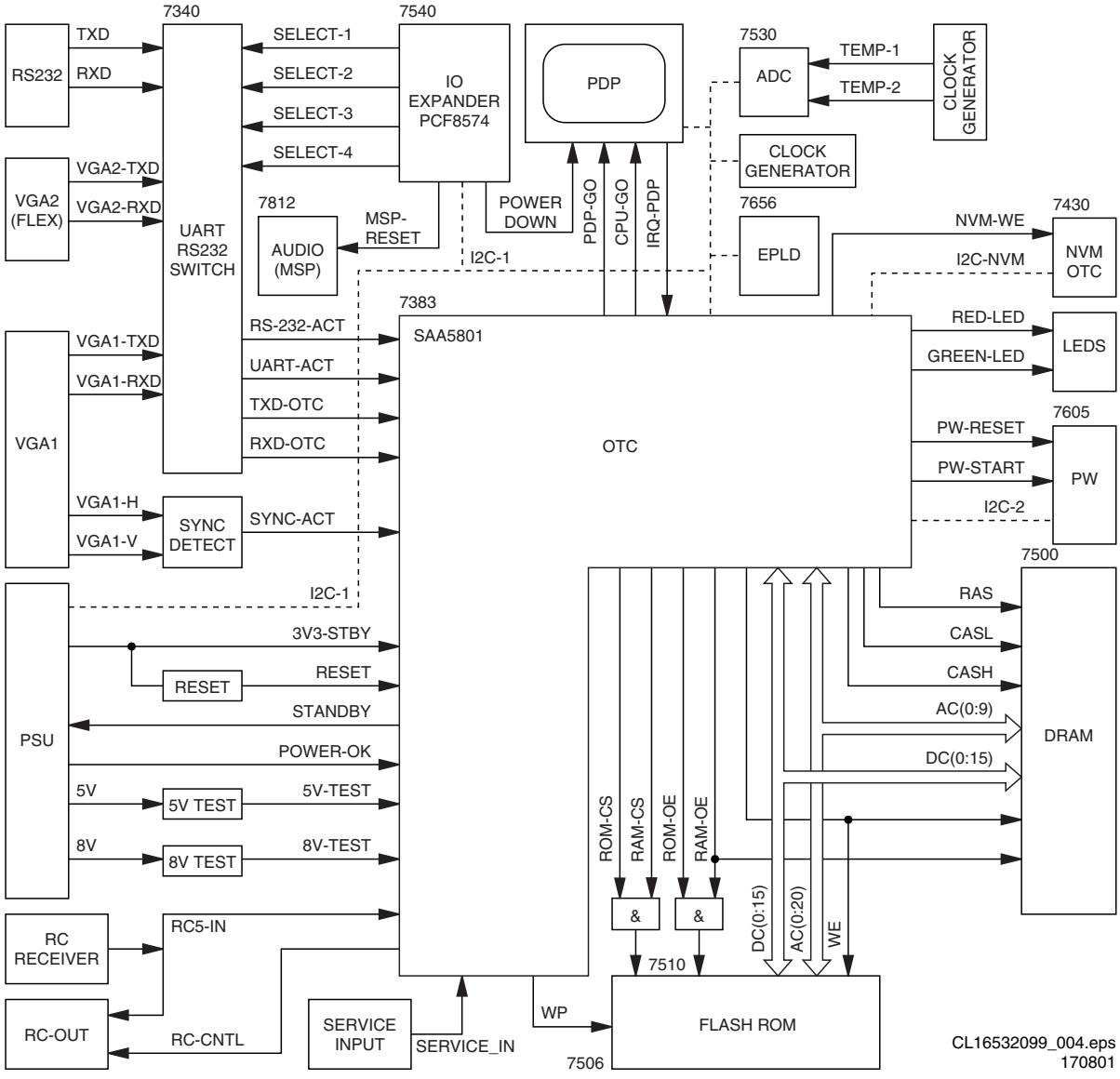


Figure 9-16 Control Part

This part describes the Main Control part of the SCAVIO panel and the interfaces with the software. The control function consists of the following tasks:

- Control of external IOs, like fan speed, temperature, service and RC5,
- UART communication with Receiver box,
- RS232 control / communication,
- Supports the uploading of new SW into the Flash-ROMs,
- Start-up of monitor and initialisation via I2C,
- Error detection and storing.

Start-up and Shut-down

The POR signal is not generated on the PSU, but on the SCAVIO board. This is done with a fully integrated ADM810T POR chip (item 7517), which senses the 3.3 V coming from the PSU. The sense level is 3.08 V. During power-up as well as power-down, this chip will make the RESET signal high. During power-up, this signal will be held "high" until 240 ms after V_cc has become stable.
During power-down, the system will be reset as soon as the V_cc drops below 3.08 V.

Start-up from Standby

When the monitor is in standby mode, it can wake-up in several ways:

- When an RC command is received (RC_IN).
- Detection of H- and/or V-sync on VGA1.
- Detection of UART communication on VGA1.
- Detection of RS232 communication.
- Detection of Service modes.

RC Command Reception

When a RC command is received at the RC receiver on the LED panel, it will go directly to the RC input of the OTC (RC_IN on pin 100). If the monitor is in standby, and a proper RC command is send, it will wake up.

The RC commands are routed to the Receiver box via the VGA1 connector pin 9 (RC_VGA1), but this loop through connection is controlled by RC_CNTL. Below is the truth table.

Table 9-5 RC Commands overview

FTV2.1E-box	FTV Monitor	RC commands	RC_CNTL
In Standby	In Standby	Send to E-box	Low
In Standby	On	Blocked	High
On	In Standby	Send to E-box	Low
On	On	Send to E-box	Low

Note: All RC commands are direct available on a separate RC-out cinch connector (RC_OUT) on the VGA connector panel.

H- and/or V-sync Detection

When both H and V sync signals are present on VGA1, there is a pulse (low) on SYNC_ACT. When only H is present, SYNC_ACT is continuously low. The SW disables the interrupt, once an interrupt is received.

UART Communication Detection

When there is UART communication on VGA1, the UART detection circuitry generates on every falling edge a pulse on UART_ACT. This is a negative going pulse with a width of ± 470 us. The first pulse will trigger the main software to check for the FTV System Protocol (FSP). The SW disables the interrupt, once an interrupt is received.

RS232 Communication Detection

When an RS232 connection is made, and communication is started (pulses on RS232_RXD), RS232_ACT becomes "high". Via a transistor, RS232_ACT will make SERVICE_IN low. When the Monitor is operating (+5 V available), this signal is made low (in fact it is disabled).

Service Mode Detection

It is possible to enter four different Service Modes (provided the OTC is still supplied by the +3V3_STBY).

Via the SERVICE_IN signal, which is an ADC input of the OTC, a voltage drop is detected from +3.3 V to V_x.

V_x is a DC voltage, which represents the mode to be entered:

Table 9-6 Service Mode levels

Service mode	Limits Vx [V]	Vx [V]	Remarks
SDM	3.0 > Vx > 2.4	± 2.6	0382-2 to GND
SAM	2.4 > Vx > 1.8	± 2.0	0382-4 to GND
COMPAIR	1.8 > Vx > 1.2	± 1.4	0382-6 to GND
RS232 active	Vx < 0.8	>0.8	Plug in RS232, start program

I2C

There are five I2C busses used in the monitor (see also "I2C Overview" in chapter 6):

- I2C bus 1 is a (5 V) device bus, controlled by the OTC, and connected to the following devices:
  - PDP.
  - EPLD.
  - IO expander SCAVIO - PCF8574A.
  - IO expander PSU - PCF8574A.
  - ADC - PCF8591.
  - Clock generator for PW - FS6377.
  - Sound processor MSP3415G.
  - Audio switch TEA6422 (*Enhanced* version only).
- I2C bus 2 is used for communication with the Pixel Works co-processor (PW). Although the OTC is the main controller, it will act in this case as a "slave", since the PW can only act as a "master". Before any I2C commands are exchanged, the PW gets an interrupt (PW_START) to indicate that the OTC wants to talk to the PW.
- I2C bus 3 is a (3.3 V) device bus, controlled by the PW, and connected to the following devices:
  - Video Decoder SAA7118 (*Enhanced* version only).
  - De-interlacer SDA9400 (*Enhanced* version only).
  - ADC/TMDS receiver AD9887.
  - 3D Comb filter MN8783LSI (optional).
- I2C bus 4 is a (3.3 V) bus between the OTC its NVM (to avoid data corruption).
- I2C bus 5 is a (3.3 V) bus between the PW and its NVM (to avoid data corruption).

Notes:

- The PDP and EPLD are in fact 3.3 V bus devices, but they need to be connected to bus 1, since the OTC is the first controller to be fully operating at start-up. For this reason, an I2C level shifter (items 7675/76 on diagram SC12) is included, which converts the 5 V signals into 3V3 and visa versa.
- One of the first commands is to set the clock generator (item 7570), else the PW can not start-up.

RS232/UART

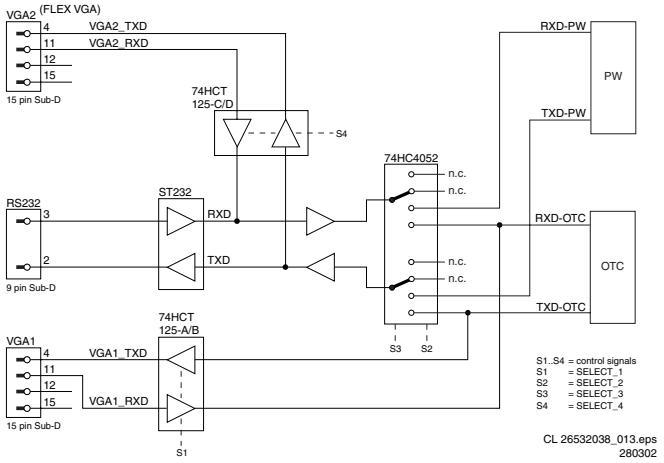


Figure 9-17 RS232/UART

The FM23 monitor is equipped with an RS232 interface. Via a nine pin Sub-D connector, it is possible to connect a PC for special modes like:

- SW download.
- Factory purposes.
- Service.
- Professional use.

A second option is the connection of a so-called ICONN-box for Institutional TV (Hotel TV).

For communication with the Receiver Box, the UART protocol is used, because this can handle longer cable distances than I2C. The (Receiver box) UART is interfaced via a 15 pin Sub-D connector (VGA connector). Via this UART connection, the F21RE Receiver box and the FM23 Monitor can communicate (via FSP). By doing so, the monitor will know that there is an

Receiver box connected and thus it is operating as a TV configuration.

RS232/UART Control
The OTC (SELECT_1 to _4) controls the RS232/UART switches. When the monitor is in Receiver box mode, there is no RS232 communication possible. The monitor is default set in Receiver box mode (switch to n.c. position) and the UART from/to VGA1 is enabled, to allow communication with Receiver box.
If no Receiver box is detected, the UART is disabled to ensure that there will be no communication towards the OTC, and the switch is set to OTC. Below the truth table of the switches is shown, which determine the TXD/RXD path.

Table 9-7 RS232/UART Control

S1= SELECT_1 (P0)	S2 = SELECT_1 (P1)	S3 = SELECT_1 (P3) (3)	S4 = SELECT_4 (P4) (4)		UART VGA1 (E-box)	UART VGA2 (flex)	RS232 set to OTC (1)	RS232 set to PW (2)
0	0	0	0		0	0	0	0
0	0	0	1		0	0	0	0
0	0	1	0		0	0	0	0
0	0	1	1		1	0	0	0
0	1	0	0		0	0	0	0
0	1	0	1		0	0	0	0
0	1	1	0		0	0	0	0
0	1	1	1		1	0	0	0
1	0	0	0		0	0	0	0
1	0	0	1		0	0	1	0
1	0	1	0		0	1	0	0
1	0	1	1		0	0	0	0
1	1	0	0		0	0	0	0
1	1	0	1		0	0	0	1
1	1	1	0		0	1	0	0
1	1	1	1		0	0	0	0

(1) Software download or ComPair mode.
(2) Software download or Debug mode.
(3) When S3 = 1 the 74HCT4052 is in a tri-state ("off" state).
(4) When S4 = 0 the TXD out of RS232 is disabled (S4 may not become low in any other case).

UART Detection
When the VGA1_RXD line is continuously "low", the OTC might run slow due the fact that so-called "break" signals are generated. To prevent this, a small circuitry is added to detect whether VGA1_RXD is continuously "low" (item 7310).
When the VGA1_RXD line is "low" for about 20 ms, the buffer-switch (item 7303-A) is opened. After this buffer, a second discrete buffer is placed (items 7315/16), which keeps the RXD_OTC line "high" and changes the 5 V into a 3.3 V level.

ICONN-box
For application of a Flat TV in a hotel environment, the monitor is designed to operate with a so-called ICONN-Box. The ICONN-box will take over the user control of the monitor, by intercepting the RC5-commands coming from a dedicated RC-transmitter, which sends specific hotel-mode commands and sending its own RC-commands to the microprocessor in the monitor.
So in the ICONN-Box, the hotel-mode commands will be converted to RC5-commands, which than can be interpreted by the monitor.

When connected to the RS232 input, this box takes over the control of the IR-receiver in the monitor. It is also able to control the front LED. The switches (7550 for the IR and 7555 for the LED signals) are controlled by the ICONN_NOT signal.

The ICONN-Box shall interface the Monitor with the following signals:
- **IR-RX.** These are the RC5-commands coming from the specific hotel RC5 - transmitter, which are received via the RC5-receiver of the monitor.
- **IR_TX.** These are the RC5-commands generated by the ICONN-Box and send to the monitor.
- **RL_ICN.** Control signal from the microprocessor (of the monitor), indicating the power state of the monitor. The ICONN-Box and monitor LED are driven in parallel.
- **GL_ICN.** Control signal from the microprocessor (of the monitor), indicating the functionality of the monitor, to drive the LED on the ICONN-Box.
- **LD_ICN.** Control signal from the ICONN-Box to drive the green LED on the monitor.

9.5 Audio Amplifier Panel (Diagram A)

9.5.1 Introduction

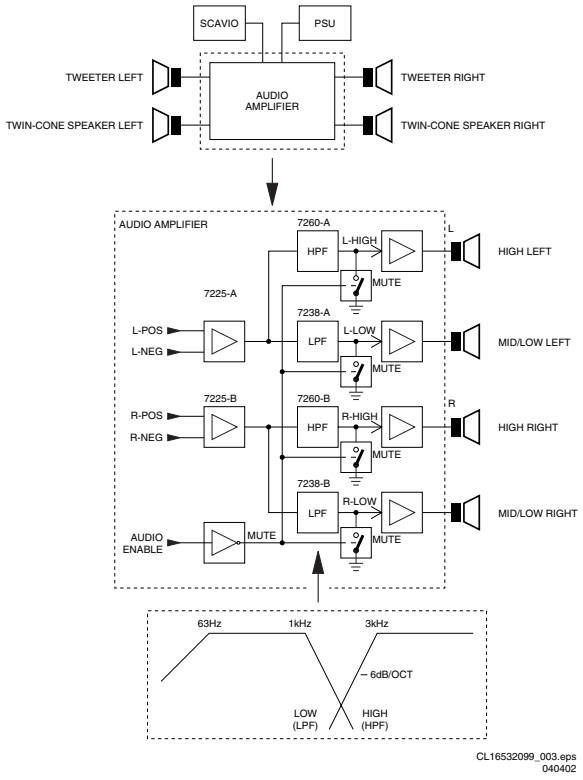


Figure 9-18 Block diagram Audio Amplifier

This panel houses the audio filters and amplifiers necessary for driving the speakers. The differential audio inputs (for common mode immunity) come from the SCAVIO panel (via connector 0388).
The PSU delivers the positive and negative supply voltage of 14.5 V_dc, as well as the +9V_STBY voltage.
After being filtered and amplified, the signals go to the speaker section, where the (twin cone) low/mid range speakers and the tweeters are driven (load impedance is 8 Ω). Shielding of these speaker magnets is not needed for a plasma screen.
Because of the limited space (no room for a bass reflex pipe), the closed box" principle has been chosen. This, in combination with the "Adaptive Ultra Bass 2", results in an acceptable bass performance.

In order to guarantee this good bass performance, the closed box has to be airtight. This is achieved by a closely fitting foam ring between the front and back part of the cabinet.

9.5.2 Supply (Diagram A7)

The supply voltage is a symmetrical voltage of +/- 14.5 V_dc, generated by the main supply via L5002.
- V_SND_POS on connector 0302 pin 5/6, and
- V_SND_NEG on connector 0302 pin 1/2.

9.5.3 Filter (Diagram A2)

Electrical filtering is needed for following reasons:
- Limiting the cone excursion, thereby reducing the distortion.
- Increasing the power handling capacity (PHC).

In this amplifier panel, active second order Sallen-Key filters are used, with crossover frequencies of 1 kHz for the low pass filter, and 3 kHz for the high pass filter.

The audio signals are filtered **before** the amplifier. There are some reasons for doing this:
- It is now easy to do active filtering, and
- At less costs (no expensive coils and capacitors).

Low Pass Filter (LPF)
For L and R separately, a Low Pass Filter (IC7238A and B) is processing L_LOW and R_LOW.
The output signal of this filter is then fed to the audio amplifier (identical for right channel).

High Pass Filter (HPF)
For L and R separately, a High Pass Filter (IC7260A and B) is processing L_HIGH and R_HIGH.
The output signal of this filter is then fed to the audio amplifier (identical for right channel).

9.5.4 Amplifier (Diagrams A3 to A6)

Each speaker has its own 15 W class-D amplifier. These so-called SODA (**S**elf **O**scillating class-**D** **A**mplifier) amplifiers combine a good performance with a high efficiency, resulting in a big reduction in heat generation.

Principle
Audio-power-amplifier systems have traditionally used linear amplifiers, which are well known for being inefficient. In fact, a linear Class AB amplifier is designed to act as a variable resistor network between the power supply and the load. The transistors operate in their linear region, and the voltage that is dropped across the transistors (in their role as variable resistors) is lost as heat, particularly in the output transistors. Class D amplifiers were developed as a way to increase the efficiency of audio-power-amplifier systems.

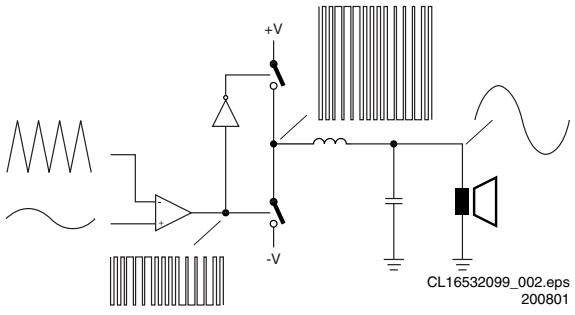


Figure 9-19 Principle Class-D Amplifier

The Class D amplifier works by varying the duty cycle of a Pulse Width Modulated (PWM) signal.

By comparing the input voltage to a triangle wave, the amplifier increases duty cycle to increase output voltage, and decreases duty cycle to decrease output voltage.
The output transistors (item 7365 on diagram A3) of a Class D amplifier switch from "full off" to "full on" (saturated) and then back again, spending very little time in the linear region in between. Therefore, very little power is lost to heat. If the transistors have a low "on" resistance (R_DS(ON)), little voltage is dropped across them, further reducing losses.
A Low Pass Filter at the output passes only the average of the output wave, which is an amplified version of the input signal.
In order to keep the distortion low, negative feedback is applied (via R3308). A second feedback loop (via R3310) is tapped after the output filter, in order to decrease the distortion at high frequencies.

The **advantage** of Class D is increased efficiency (= less heat dissipation). Class D amplifiers can drive the same output power as a Class AB amplifier using less supply current.
The **disadvantag**e is the large output filter that drives up cost and size. The main reason for this filter is that the switching waveform results in maximum current flow. This causes more loss in the load, which causes lower efficiency. An LC filter with a cut-off frequency less than the Class D switching frequency (350 kHz), allows the switching current to flow through the filter instead of the load. The filter is less lossy than the speaker, which causes less power dissipated at high output power and increases efficiency in most cases.

9.5.5 Mute (Diagram A2 to A6)

A mute switch (item 7302) is provided at the PWM inputs (item 7315, LM311). This switch is controlled by the AUDIO_ENABLE line, which checks the availability of the +9V_STBY voltage.

9.5.6 Protections

Short-circuit Protection (Diagram A3)
A protection is made against a too high temperature of transistor 7355 in case of a short-circuit of output FET 7365-1. Transistor 7340 is sensing the current through transistor 7355 via R3355, and activates the DC-protection line (see figure "DC protection") in case the current becomes too high. This is the same for all four amplifier parts.

DC-protection (Diagram A7)

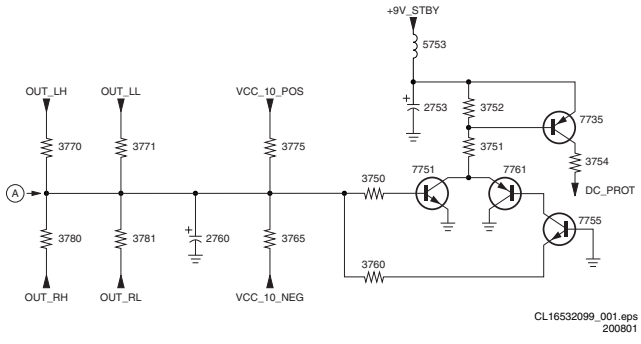


Figure 9-20 DC Protection

Because of the symmetrical supply, a DC-blocking capacitor, between the amplifier and the speaker, is not necessary. However, it is still necessary to protect the speaker for DC voltages.
The following protections are therefore implemented:
- Via R3765 and R3775, each stabilised supply voltage line (via items 7735 and 7745) is checked on deviations.
- Via R3770/3771/3780/3781, each amplifier output is checked for DC-voltage.

Via R3765/3775, a virtual earth is imposed on point A. When one of the supply voltages deviates, a DC voltage will occur on this point. If point A is positive, T7751 will conduct. If it is negative, T7761 will conduct.
Both cases will make T7735 conduct, so that the DC-PROT signal will be made high. This ensures that the power supply is rapidly trimmed back.
Capacitor C2760 will ensure that only DC-signals at point A will activate the protection.

9.6 LED/Switch Panel (Diagram LD)

This panel contains:
- The red and green status LEDs,
- The RC input receiver,
- The light sensor, and
- The "on/off" switch.

All signals on this panel come directly from the SCAVIO panel:
- The LED and sensor signals (RED_LED, GREEN_LED and LIGHT_SEN_IN) are routed to the OTC. When a F21RE Receiver box is connected, the sensor signal is routed to the OTC of this box (via UART), where it will control the HOP via I2C.
- The RC signal (RC_IN) is routed to the OTC, the VGA1 connector, and the RC-out cinch connector.
- The signals to (+9V_STBY) and from (+9V_STBY_SW) the "on/off" switch are routed to the PSU board.

9.7 Plasma Display Panel (PDP)

9.7.1 General

The PDP, which is used in this chassis, is a product of Fujitsu Hitachi Plasma Display Ltd (FHP). When defect, a new panel must be ordered, and after receipt, the defective panel must be send for repair in the packing (flight case) of the new ordered panel.

9.7.2 Operation

Principle
Plasma displays work by applying a voltage between two transparent display electrodes on the front glass plate of the display. The electrodes are separated by an MgO dielectric layer and surrounded by a mixture of neon and xenon gases. When the voltage reaches the "firing level", a plasma discharge occurs on the surface of the dielectric, resulting in the emission of ultra violet light.
This UV light then excites the phosphor material at the back of the cell and emits visible light. Each cell or sub-pixel has red, blue or green phosphor material and three sub-pixels combine to make up a pixel. The intensity of each colour is controlled by varying the number and width of voltage pulses applied to the sub-pixel during a picture frame. This is implemented by dividing each picture frame into sub-frames. During a sub-frame, all cells are first addressed - those to be lit are pre-charged to a specific address voltage - then during the display time the display voltage is applied to the entire screen lighting those that were addressed.
Each sub-frame has a weighting ranging from 1 time unit to 128 time units for a typical eight sub-frame arrangement (Time Unit depends on size and number of pixels on the screen). This is a purely digital PWM control mechanism, which is a key advantage as it eliminates any unnecessary digital to analogue conversions, making the PDP technology ideal for the all-digital age.

Achieving High Resolution
While conventional technology, as found in standard VGA resolution screens, uses 2 display electrodes for each horizontal line, applying the same method to achieve higher resolution (>1000 horizontal lines) brings inherent problems. Firstly, the number of electrodes would need to be doubled which would require very high precision production processes. Secondly, the cell aperture ratio would reduce resulting in lower brightness. In addition, either the driving scheme would have to operate with double the speed, again introducing significantly higher cost, or a dual-scan technique would have to be introduced. With dual-scan, twice as many driving ICs would be required. In summary, implementing high resolution with conventional technology would result in lower brightness and increased costs.

ALiS Technology
To achieve high brightness as well as cost-effectiveness, FHP developed ALiS (Alternate Lighting of Surfaces) Technology. ALiS is based on 3 principles:
- Odd and Even lines are displayed separately
- The non-lighting area between the cells is utilised
- The number of electrodes = the number of horizontal display lines + 1

Despite the smaller cell size, the aperture ratio can be increased from 40% to 65% meaning that the screen is inherently brighter. Another spin-off benefit is that the lighting duty is reduced to 50% (odd fields and even fields lit for half of each frame) meaning that a significantly improved phosphor lifetime can be expected.

For more information, see *http://www.fme.fujitsu.com/products/displays/pdp.html*

9.8 Abbreviation List

ADC	Analogue to Digital Converter
ALiS	Alternate Lighting of Surfaces, new plasma display technology
AM	Amplitude Modulation
AP	Asia Pacific
AV	External Audio Video
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BGA	Ball Grid Array
BTSC	Broadcast Television Standard Committee. Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries
ComPair	Computer aided rePair
CVBS	Composite Video Blanking and Synchronisation
DAC	Digital to Analogue Converter
DDC	Display Data Channel (a protocol based on I2C)
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz
DFU	Direction For Use: description for the end user
DNR	Dynamic Noise Reduction
DRAM	Dynamic RAM
DSP	Digital Signal Processing
DTS	Digital Theatre Sound
DVD	Digital Versatile Disc
DVI-d	Digital Visual Interface, d = digital only
EEPROM	Electrically Erasable and Programmable Read Only Memory
EMI	Electro Magnetic Interference
EPLD	Erasable Programmable Logic Device
EU	Europe
EXT	External (source), entering the set via SCART or Cinch
FLASH	Flash memory
FM	Frequency Modulation
FSP	FTV System Protocol
FTV	Flat TeleVision
HP	Headphone
I	Monochrome TV system. Sound carrier distance is 6.0 MHz
I2C	Integrated IC bus
I2S	Integrated IC Sound bus
ICONN	Institutional CONNector
IF	Intermediate Frequency
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IR	Infra Red
IRQ	Interrupt Request
LATAM	Latin America
LED	Light Emitting Diode
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
LS	Loudspeaker
LVDS	Low Voltage Differential Signalling
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz
MOSFET	Metal Oxide Silicon Field Effect Transistor, switching device
MPEG	Motion Pictures Experts Group
NC	Not Connected
NICAM	Near Instantaneous Compounded Audio Multiplexing. This is a digital sound system, mainly used in Europe.
NTC	Negative Temperature Coefficient, non-linear resistor
NTSC	National Television Standard Committee. Colour system mainly used in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory: IC containing TV related data e.g. alignments
OC	Open Circuit
OSD	On Screen Display
OTC	On screen display, Teletext and Control
P50	Project 50 or Easy Link
PAL	Phase Alternating Line. Colour system mainly used in West Europe (colour carrier = 4.433619 MHz) and South America (colour carrier PAL M = 3.575612 MHz and PAL N = 3.582056 MHz)
PCB	Printed Circuit Board
PCM	Pulse Code Modulation
PDP	Plasma Display Panel
PFC	Power Factor Corrector (or Pre-conditioner)
PIP	Picture In Picture
PLL	Phase Locked Loop. Used for e.g. FST tuning systems. The customer can give directly the desired frequency
POR	Power On Reset, signal to reset the P
Progressive Scan	Scan mode, where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PTC	Positive Temperature Coefficient, non linear resistor
PW	Pixel Works (manufacturer) video scaling co-processor
PWM	Pulse Width Modulation
RAM	Random Access Memory
RC	Remote Control handset
RC5	Remote Control system 5, signal from the remote control receiver
RGB	Red Green Blue
ROM	Read Only Memory
SCART	Syndicat des Constructeurs d'Appareils Radiorecepteurs et Televisieurs
SCAVIO	Scaler Control Audio Video Input and Output
SCL	Serial Clock I2C
SDA	Serial Data I2C
SDRAM	Synchronous DRAM
SECAM	SEequence Couleur Avec Memoire. Colour system mainly used in France and East Europe. Colour carriers = 4.406250 MHz and 4.250000 MHz
SMPS	Switched Mode Power Supply
SOG	Sync On Green
SOPS	Self Oscillating Power Supply
S/PDIF	Sony Philips Digital InterFace
SRAM	Static RAM
STBY	Standby
SVHS	Super Video Home System
SW	Software
SXGA	1280x1024
THD	Total Harmonic Distortion
TMDS	Transition Minimised Differential Signalling
TXT	Teletext
UART	Universal Asynchronous Receiver Transmitter, 2-wire bus which can handle longer cables than I2C.

P	Microprocessor
VCR	Video Cassette Recorder
V_a	Addressing voltage for the plasma display
V_ra	Setting voltage for V_a
V_rs	Setting voltage for V_s
V_s	Sustain voltage for the plasma display
Y/C	Luminance (Y) and Chrominance (C) signal
YUV	Component video
0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format

9.9 IC Data

In this paragraph, the internal block diagrams and pinning are given of ICs that are drawn as a "black box" in the electrical diagrams (with exception of "memory" and "logic" ICs).

9.9.1 Diagram P2, TNY256 (IC7500)

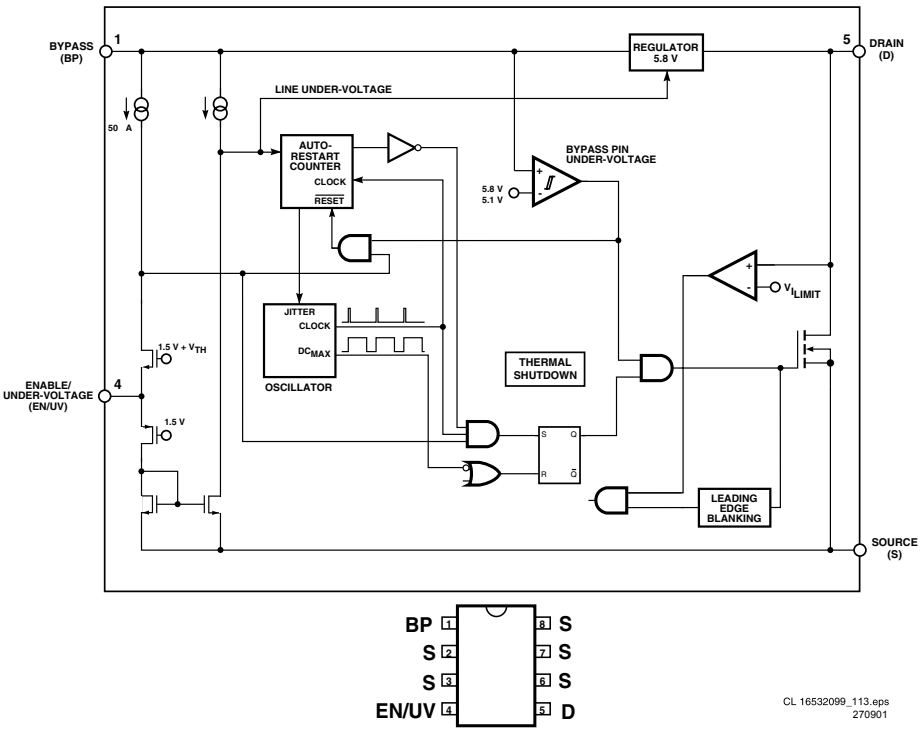
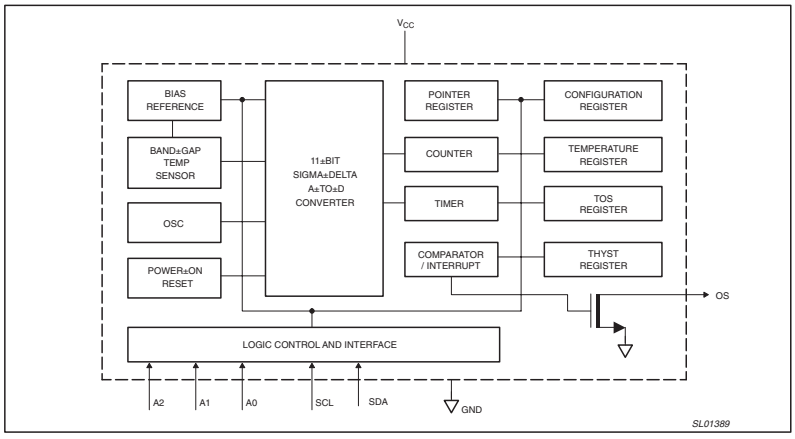


Figure 9-21 Internal block diagram and pinning

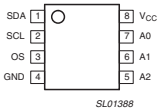
9.9.2 Diagram P3, LM75A (IC7372)

SIMPLIFIED BLOCK DIAGRAM



PINNING

Pin configuration



Pin description

PIN	SYMBOL	DESCRIPTION
1	SDA	Digital I/O. I²C serial bi-directional data line. Open Drain.
2	SCL	Digital input. I²C serial clock input.
3	OS	Overtemp Shutdown output. Open Drain.
4	GND	Ground. To be connected to the system ground.
5	A2	Digital input. User-defined address bit2.
6	A1	Digital input. User-defined address bit1.
7	A0	Digital input. User-defined address bit0.
8	V_{CC}	Power supply.

CL 36532051_033.eps
030703

Figure 9-22 Internal block diagram and pinning

9.9.3 Diagram P5, MC33368 (IC7650)

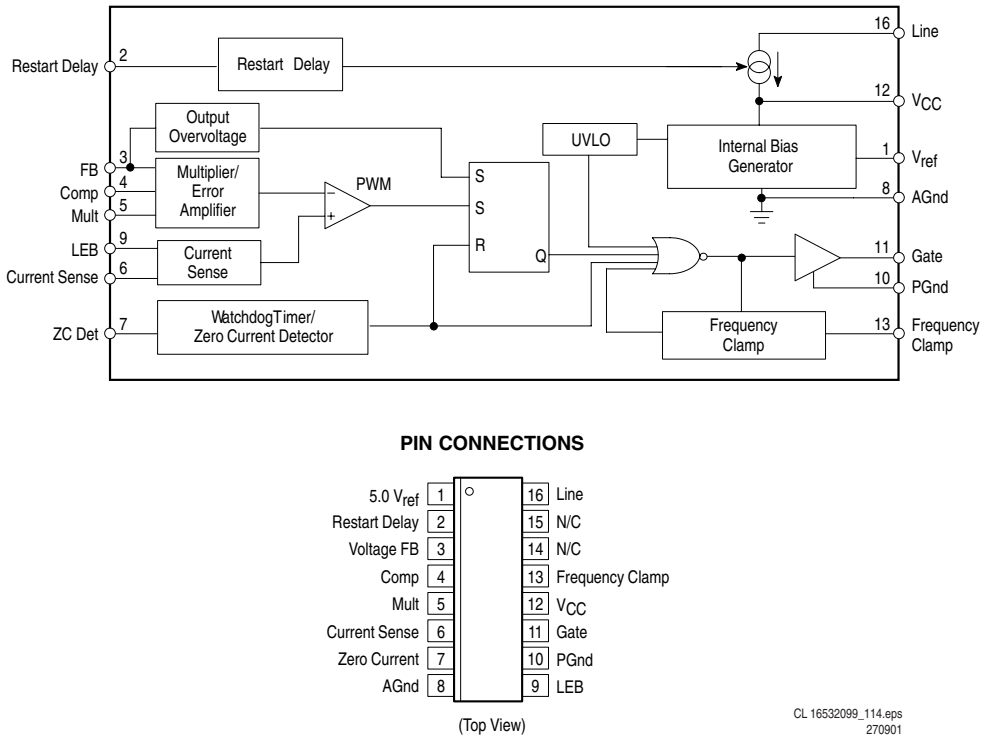


Figure 9-23 Internal block diagram and pinning

9.9.4 Diagram P7, TEA1507 (IC7112 and IC7212)

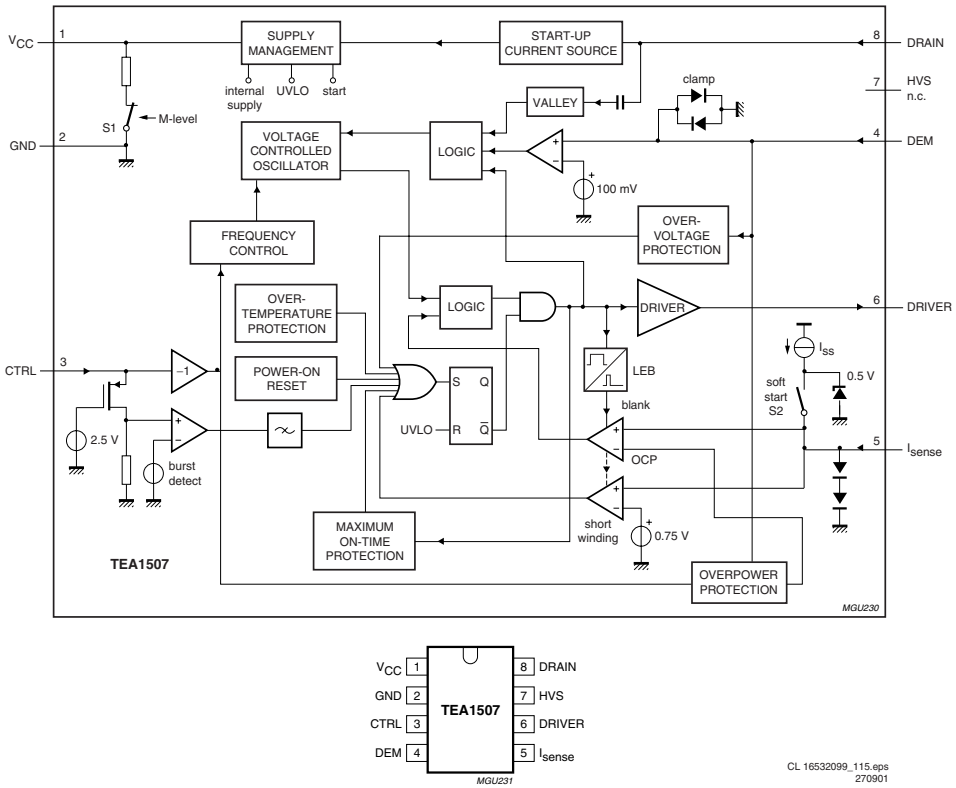


Figure 9-24 Internal Block Diagram and pinning TEA1507

9.9.5 Diagram P7, L4973V (IC7260)

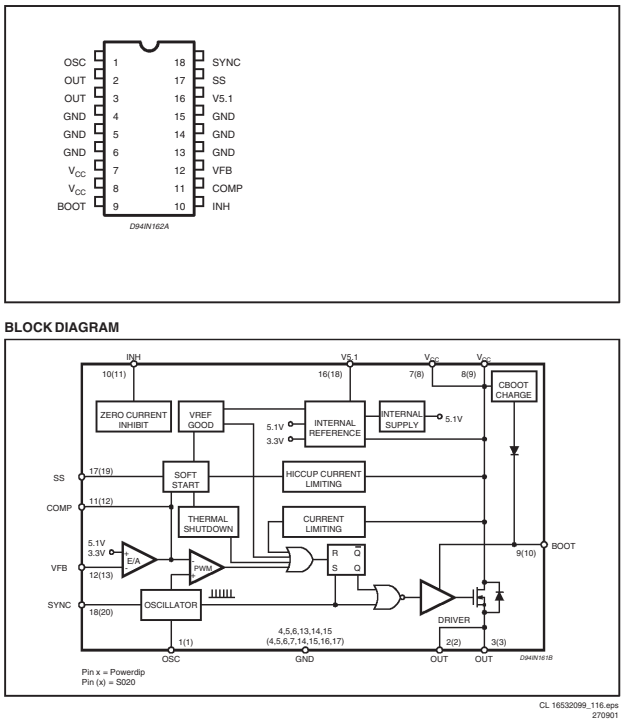


Figure 9-25 Internal Block Diagram and pinning L4973

9.9.6 Diagram SC2, LM1881M (7040)

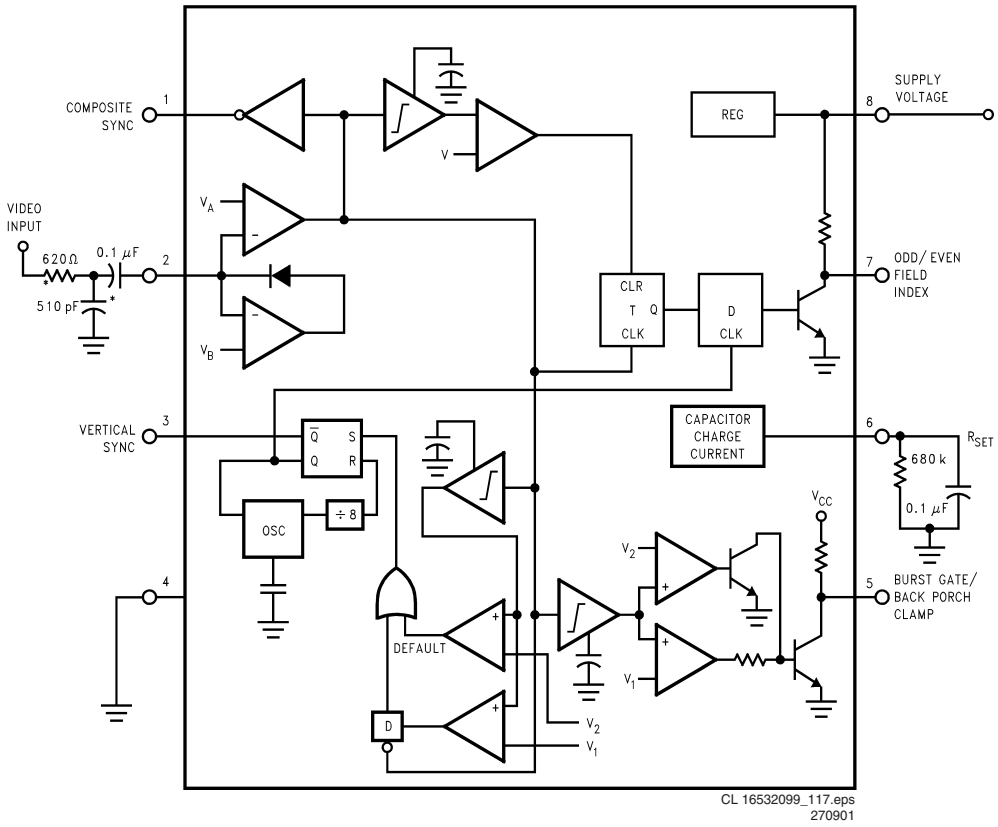


Figure 9-26 Internal Block Diagram and pinning LM1881

9.9.7 Diagram SP2, PCF8591 (7530)

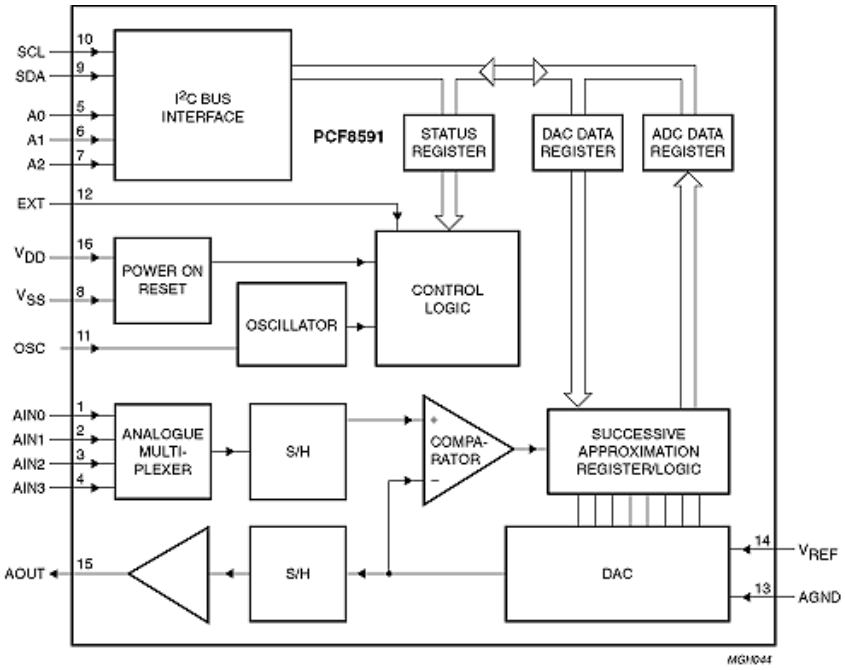


Figure 9-27 Internal Block Diagram PCF8591

10. Spare Parts List

Audio Panel [A]

Various

0302	2422 025 16846	Connector 9P m h
0303	2422 025 16702	Connector 5P m h
0304	2422 025 16543	Connector 4P m
0388	2422 025 16703	Connector 7P m
0388	2422 025 16704	Connector 8P m
1730	4822 071 52502	Fuse 2.5A
1730	4822 253 50137	Fuse 2.5A
1740	4822 071 52502	Fuse 2.5A
1740	4822 253 50137	Fuse 2.5A

⊣⊢

2201	4822 126 13193	4.7nF 10% 63V
2202	4822 124 23002	10µF 20% 16V
2204	4822 126 14226	82pF 5% 50V 0603
2205	4822 126 13193	4.7nF 10% 63V
2206	4822 124 23002	10µF 20% 16V
2207	4822 126 14226	82pF 5% 50V 0603
2212	5322 126 11578	1nF 10% 50V 0603
2215	4822 126 13193	4.7nF 10% 63V
2216	4822 124 23002	10µF 20% 16V
2218	4822 126 14226	82pF 5% 50V 0603
2220	4822 126 13193	4.7nF 10% 63V
2221	4822 124 23002	10µF 20% 16V
2222	4822 126 14226	82pF 5% 50V 0603
2224	2238 586 59812	100nF 20-80% 50V 0603
2224	4822 126 14305	100nF 10% 16V 0603
2225	2238 586 59812	100nF 20-80% 50V 0603
2225	4822 126 14305	100nF 10% 16V 0603
2233	2020 552 96325	25V 68nF 10%
2233	3198 017 31530	15nF 20% 50V 0603
2233	3198 017 36830	68nF 10% 16V 0603
2233	5322 126 11582	6.8nF 10% 63V
2234	2238 586 59812	100nF 20-80% 50V 0603
2234	3198 017 31530	15nF 20% 50V 0603
2234	4822 126 14494	22nF 10% 25V 0603
2238	2238 586 59812	100nF 20-80% 50V 0603
2238	4822 126 14305	100nF 10% 16V 0603
2239	2238 586 59812	100nF 20-80% 50V 0603
2239	4822 126 14305	100nF 10% 16V 0603
2243	2020 552 96325	25V 68nF 10%
2243	3198 017 31530	15nF 20% 50V 0603
2243	3198 017 36830	68nF 10% 16V 0603
2243	5322 126 11582	6.8nF 10% 63V
2244	2238 586 59812	100nF 20-80% 50V 0603
2244	3198 017 31530	15nF 20% 50V 0603
2244	4822 126 14494	22nF 10% 25V 0603
2255	4822 126 13193	4.7nF 10% 63V
2255	4822 126 14494	22nF 10% 25V 0603
2256	4822 126 13193	4.7nF 10% 63V
2256	4822 126 14494	22nF 10% 25V 0603
2260	2238 586 59812	100nF 20-80% 50V 0603
2260	4822 126 14305	100nF 10% 16V 0603
2261	2238 586 59812	100nF 20-80% 50V 0603
2261	4822 126 14305	100nF 10% 16V 0603
2270	4822 126 13193	4.7nF 10% 63V
2270	4822 126 14494	22nF 10% 25V 0603
2271	4822 126 13193	4.7nF 10% 63V
2271	4822 126 14494	22nF 10% 25V 0603
2309	4822 126 14247	1.5nF 50V 0603
2310	4822 126 14226	82pF 5% 50V 0603
2315	4822 124 12084	1µF 20% 50V
2315	4822 124 23002	10µF 20% 16V
2316	2238 586 59812	100nF 20-80% 50V 0603
2316	4822 126 14305	100nF 10% 16V 0603
2318	2238 586 59812	100nF 20-80% 50V 0603
2318	4822 126 14305	100nF 10% 16V 0603
2319	4822 124 12084	1µF 20% 50V
2319	4822 124 23002	10µF 20% 16V
2330	2238 586 59812	100nF 20-80% 50V 0603
2330	4822 126 14305	100nF 10% 16V 0603
2334	2020 012 93764	220µF 20% 35V
2335	2238 586 59812	100nF 20-80% 50V 0603
2335	4822 126 14305	100nF 10% 16V 0603
2340	5322 126 11583	10nF 10% 50V 0603
2355	2238 586 59812	100nF 20-80% 50V 0603
2355	4822 126 14305	100nF 10% 16V 0603
2359	2238 586 59812	100nF 20-80% 50V 0603
2359	4822 126 14305	100nF 10% 16V 0603
2360	2020 012 93764	220µF 20% 35V
2365	2020 552 96326	220nF 10% 16V
2366	2020 552 96326	220nF 10% 16V
2409	4822 126 14247	1.5nF 50V 0603
2410	4822 126 14226	82pF 5% 50V 0603
2415	4822 124 12084	1µF 20% 50V
2415	4822 124 23002	10µF 20% 16V
2416	2238 586 59812	100nF 20-80% 50V 0603
2416	4822 126 14305	100nF 10% 16V 0603
2418	2238 586 59812	100nF 20-80% 50V 0603
2418	4822 126 14305	100nF 10% 16V 0603
2419	4822 124 12084	1µF 20% 50V
2419	4822 124 23002	10µF 20% 16V
2430	2238 586 59812	100nF 20-80% 50V 0603
2430	4822 126 14305	100nF 10% 16V 0603
2434	2020 012 93764	220µF 20% 35V
2435	2238 586 59812	100nF 20-80% 50V 0603
2435	4822 126 14305	100nF 10% 16V 0603
2440	5322 126 11583	10nF 10% 50V 0603
2455	2238 586 59812	100nF 20-80% 50V 0603
2455	4822 126 14305	100nF 10% 16V 0603
2459	2238 586 59812	100nF 20-80% 50V 0603
2459	4822 126 14305	100nF 10% 16V 0603
2460	2020 012 93764	220µF 20% 35V
2465	2020 552 96326	220nF 10% 16V
2466	2020 552 96326	220nF 10% 16V
2509	4822 126 14247	1.5nF 50V 0603
2510	4822 126 14226	82pF 5% 50V 0603
2515	4822 124 12084	1µF 20% 50V
2515	4822 124 23002	10µF 20% 16V
2516	2238 586 59812	100nF 20-80% 50V 0603
2516	4822 126 14305	100nF 10% 16V 0603
2518	2238 586 59812	100nF 20-80% 50V 0603
2518	4822 126 14305	100nF 10% 16V 0603
2519	4822 124 12084	1µF 20% 50V
2519	4822 124 23002	10µF 20% 16V
2530	2238 586 59812	100nF 20-80% 50V 0603
2530	4822 126 14305	100nF 10% 16V 0603
2534	2020 012 93764	220µF 20% 35V
2535	2238 586 59812	100nF 20-80% 50V 0603
2535	4822 126 14305	100nF 10% 16V 0603
2540	5322 126 11583	10nF 10% 50V 0603
2555	2238 586 59812	100nF 20-80% 50V 0603
2555	4822 126 14305	100nF 10% 16V 0603
2559	2238 586 59812	100nF 20-80% 50V 0603
2559	4822 126 14305	100nF 10% 16V 0603
2560	2020 012 93764	220µF 20% 35V
2565	2020 552 96326	220nF 10% 16V
2566	2020 552 96326	220nF 10% 16V
2609	4822 126 14247	1.5nF 50V 0603
2610	4822 126 14226	82pF 5% 50V 0603
2615	4822 124 12084	1µF 20% 50V
2615	4822 124 23002	10µF 20% 16V
2616	2238 586 59812	100nF 20-80% 50V 0603
2616	4822 126 14305	100nF 10% 16V 0603
2618	2238 586 59812	100nF 20-80% 50V 0603
2618	4822 126 14305	100nF 10% 16V 0603
2619	4822 124 12084	1µF 20% 50V
2619	4822 124 23002	10µF 20% 16V
2630	2238 586 59812	100nF 20-80% 50V 0603
2630	4822 126 14305	100nF 10% 16V 0603
2634	2020 012 93764	220µF 20% 35V
2635	2238 586 59812	100nF 20-80% 50V 0603
2635	4822 126 14305	100nF 10% 16V 0603
2640	5322 126 11583	10nF 10% 50V 0603
2655	2238 586 59812	100nF 20-80% 50V 0603
2655	4822 126 14305	100nF 10% 16V 0603
2659	2238 586 59812	100nF 20-80% 50V 0603
2659	4822 126 14305	100nF 10% 16V 0603
2660	2020 012 93764	220µF 20% 35V
2665	2020 552 96326	220nF 10% 16V
2666	2020 552 96326	220nF 10% 16V
2730	2020 012 93764	220µF 20% 35V
2732	2020 012 93764	220µF 20% 35V
2733	4822 124 23002	10µF 20% 16V
2734	4822 124 12084	1µF 20% 50V
2734	4822 124 23002	10µF 20% 16V
2740	2020 012 93764	220µF 20% 35V
2742	2020 012 93764	220µF 20% 35V
2743	4822 124 23002	10µF 20% 16V
2744	4822 124 12084	1µF 20% 50V
2744	4822 124 23002	10µF 20% 16V
2752	4822 124 23002	10µF 20% 16V
2753	4822 124 23002	10µF 20% 16V
2759	5322 126 11578	1nF 10% 50V 0603
2760	5322 124 41945	22µF 20% 35V
2770	5322 126 11578	1nF 10% 50V 0603
2771	5322 126 11578	1nF 10% 50V 0603
2780	5322 126 11578	1nF 10% 50V 0603
2781	5322 126 11578	1nF 10% 50V 0603
2799	5322 126 11583	10nF 10% 50V 0603

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3201	4822 051 30221	220Ω 5% 0.062W
3202	4822 051 30102	1kΩ 5% 0.062W
3203	4822 051 30272	2.7kΩ 5% 0.062W
3203	4822 051 30332	3.3kΩ 5% 0.062W
3205	4822 051 30221	220Ω 5% 0.062W
3206	4822 051 30102	1kΩ 5% 0.062W
3207	4822 051 30272	2.7kΩ 5% 0.062W
3207	4822 051 30332	3.3kΩ 5% 0.062W
3210	4822 051 30333	33kΩ 5% 0.062W
3211	4822 117 13632	100kΩ 1% 0603 0.62W
3215	4822 051 30221	220Ω 5% 0.062W
3216	4822 051 30102	1kΩ 5% 0.062W
3217	4822 051 30272	2.7kΩ 5% 0.062W
3217	4822 051 30332	3.3kΩ 5% 0.062W
3220	4822 051 30221	220Ω 5% 0.062W
3221	4822 051 30102	1kΩ 5% 0.062W
3222	4822 051 30272	2.7kΩ 5% 0.062W
3222	4822 051 30332	3.3kΩ 5% 0.062W
3230	4822 051 30101	100Ω 5% 0.062W
3231	4822 051 30103	10kΩ 5% 0.062W
3231	4822 051 30222	2.2kΩ 5% 0.062W
3232	4822 051 30103	10kΩ 5% 0.062W
3232	4822 051 30152	1.5kΩ 5% 0.062W
3232	4822 051 30682	6.8kΩ 5% 0.062W
3233	4822 051 30103	10kΩ 5% 0.062W
3233	4822 051 30222	2.2kΩ 5% 0.062W
3234	4822 051 30272	2.7kΩ 5% 0.062W
3234	4822 051 30561	560Ω 5% 0.062W
3234	4822 117 12917	1Ω 5% 0.062W 0603
3240	4822 051 30101	100Ω 5% 0.062W
3241	4822 051 30103	10kΩ 5% 0.062W
3241	4822 051 30222	2.2kΩ 5% 0.062W
3242	4822 051 30103	10kΩ 5% 0.062W
3242	4822 051 30152	1.5kΩ 5% 0.062W
3242	4822 051 30682	6.8kΩ 5% 0.062W
3243	4822 051 30103	10kΩ 5% 0.062W
3243	4822 051 30222	2.2kΩ 5% 0.062W
3244	4822 051 30272	2.7kΩ 5% 0.062W
3244	4822 051 30561	560Ω 5% 0.062W
3244	4822 117 12917	1Ω 5% 0.062W 0603
3255	4822 051 30562	5.6kΩ 5% 0.063W 0603
3255	4822 117 11817	1.2kΩ 1% 1/16W
3256	4822 051 30153	15kΩ 5% 0.062W
3256	4822 051 30332	3.3kΩ 5% 0.062W
3257	4822 051 30222	2.2kΩ 5% 0.062W
3257	4822 051 30471	470Ω 5% 0.062W
3259	4822 117 12917	1Ω 5% 0.062W 0603
3270	4822 051 30562	5.6kΩ 5% 0.063W 0603
3270	4822 117 11817	1.2kΩ 1% 1/16W
3271	4822 051 30153	15kΩ 5% 0.062W
3271	4822 051 30332	3.3kΩ 5% 0.062W
3272	4822 051 30222	2.2kΩ 5% 0.062W
3272	4822 051 30471	470Ω 5% 0.062W
3274	4822 117 12917	1Ω 5% 0.062W 0603
3301	4822 051 30102	1kΩ 5% 0.062W
3301	4822 117 12902	8.2kΩ 1% 0.063W 0603
3302	4822 051 30103	10kΩ 5% 0.062W
3302	4822 051 30472	4.7kΩ 5% 0.062W
3303	4822 051 30102	1kΩ 5% 0.062W
3304	4822 051 30472	4.7kΩ 5% 0.062W
3306	4822 117 12902	8.2kΩ 1% 0.063W 0603
3306	4822 117 12903	1.8kΩ 1% 0.063W 0603
3307	4822 117 13632	100kΩ 1% 0603 0.62W
3308	4822 117 13632	100kΩ 1% 0603 0.62W
3309	4822 051 30181	180Ω 5% 0.062W
3310	4822 117 12864	82kΩ 5% 0.6W
3311	4822 051 30682	6.8kΩ 5% 0.062W
3311	4822 117 12917	1Ω 5% 0.062W 0603
3315	5322 117 11726	10Ω 5%
3318	5322 117 11726	10Ω 5%
3325	4822 117 11449	2.2kΩ 5% 0.1W 0805
3327	4822 117 11449	2.2kΩ 5% 0.1W 0805
3328	4822 051 30102	1kΩ 5% 0.062W
3330	5322 117 11726	10Ω 5%
3336	4822 051 30475	4.7MΩ 5% 0.062W 0603
3336	4822 117 12891	220kΩ 1% 0.063W 0603
3337	5322 117 11726	10Ω 5%
3340	4822 051 30103	10kΩ 5% 0.062W
3355	5322 117 11726	10Ω 5%
3361	4822 051 30475	4.7MΩ 5% 0.062W 0603
3361	4822 117 12891	220kΩ 1% 0.063W 0603
3362	5322 117 11726	10Ω 5%
3401	4822 051 30102	1kΩ 5% 0.062W
3401	4822 117 12902	8.2kΩ 1% 0.063W 0603
3402	4822 051 30103	10kΩ 5% 0.062W
3402	4822 051 30472	4.7kΩ 5% 0.062W

3403	4822 051 30102	1kΩ 5% 0.062W
3404	4822 051 30472	4.7kΩ 5% 0.062W
3406	4822 117 12902	8.2kΩ 1% 0.063W 0603
3406	4822 117 12903	1.8kΩ 1% 0.063W 0603
3407	4822 117 13632	100kΩ 1% 0603 0.62W
3408	4822 117 13632	100kΩ 1% 0603 0.62W
3409	4822 051 30181	180Ω 5% 0.062W
3410	4822 117 12864	82kΩ 5% 0.6W
3411	4822 051 30153	15kΩ 5% 0.062W
3415	5322 117 11726	10Ω 5%
3418	5322 117 11726	10Ω 5%
3425	4822 117 11449	2.2kΩ 5% 0.1W 0805
3427	4822 117 11449	2.2kΩ 5% 0.1W 0805
3428	4822 051 30102	1kΩ 5% 0.062W
3430	5322 117 11726	10Ω 5%
3436	4822 051 30475	4.7MΩ 5% 0.062W 0603
3436	4822 117 12891	220kΩ 1% 0.063W 0603
3437	5322 117 11726	10Ω 5%
3440	4822 051 30103	10kΩ 5% 0.062W
3455	5322 117 11726	10Ω 5%
3461	4822 051 30475	4.7MΩ 5% 0.062W 0603
3461	4822 117 12891	220kΩ 1% 0.063W 0603
3462	5322 117 11726	10Ω 5%
3501	4822 051 30102	1kΩ 5% 0.062W
3501	4822 117 12902	8.2kΩ 1% 0.063W 0603
3502	4822 051 30103	10kΩ 5% 0.062W
3502	4822 051 30472	4.7kΩ 5% 0.062W
3503	4822 051 30102	1kΩ 5% 0.062W
3504	4822 051 30472	4.7kΩ 5% 0.062W
3506	4822 117 12902	8.2kΩ 1% 0.063W 0603
3506	4822 117 12903	1.8kΩ 1% 0.063W 0603
3507	4822 117 13632	100kΩ 1% 0603 0.62W
3508	4822 117 13632	100kΩ 1% 0603 0.62W
3509	4822 051 30181	180Ω 5% 0.062W
3510	4822 117 12864	82kΩ 5% 0.6W
3511	4822 051 30682	6.8kΩ 5% 0.062W
3515	5322 117 11726	10Ω 5%
3518	5322 117 11726	10Ω 5%
3525	4822 117 11449	2.2kΩ 5% 0.1W 0805
3527	4822 117 11449	2.2kΩ 5% 0.1W 0805
3528	4822 051 30102	1kΩ 5% 0.062W
3530	5322 117 11726	10Ω 5%
3536	4822 051 30475	4.7MΩ 5% 0.062W 0603
3536	4822 117 12891	220kΩ 1% 0.063W 0603
3537	5322 117 11726	10Ω 5%
3540	4822 051 30103	10kΩ 5% 0.062W
3555	5322 117 11726	10Ω 5%
3561	4822 051 30475	4.7MΩ 5% 0.062W 0603
3561	4822 117 12891	220kΩ 1% 0.063W 0603
3562	5322 117 11726	10Ω 5%
3601	4822 051 30102	1kΩ 5% 0.062W
3601	4822 117 12902	8.2kΩ 1% 0.063W 0603
3602	4822 051 30103	10kΩ 5% 0.062W
3602	4822 051 30472	4.7kΩ 5% 0.062W
3603	4822 051 30102	1kΩ 5% 0.062W
3604	4822 051 30472	4.7kΩ 5% 0.062W
3606	4822 117 12902	8.2kΩ 1% 0.063W 0603
3606	4822 117 12903	1.8kΩ 1% 0.063W 0603
3607	4822 117 13632	100kΩ 1% 0603 0.62W
3608	4822 117 13632	100kΩ 1% 0603 0.62W
3609	4822 051 30181	180Ω 5% 0.062W
3610	4822 117 12864	82kΩ 5% 0.6W
3611	4822 051 30153	15kΩ 5% 0.062W
3611	4822 051 30223	22kΩ 5% 0.062W
3615	5322 117 11726	10Ω 5%
3618	5322 117 11726	10Ω 5%
3625	4822 117 11449	2.2kΩ 5% 0.1W 0805
3627	4822 117 11449	2.2kΩ 5% 0.1W 0805
3628	4822 051 30102	1kΩ 5% 0.062W
3630	5322 117 11726	10Ω 5%
3636	4822 051 30475	4.7MΩ 5% 0.062W 0603
3636	4822 117 12891	220kΩ 1% 0.063W 0603
3637	5322 117 11726	10Ω 5%
3640	4822 051 30103	10kΩ 5% 0.062W
3655	5322 117 11726	10Ω 5%
3661	4822 051 30475	4.7MΩ 5% 0.062W 0603
3661	4822 117 12891	220kΩ 1% 0.063W 0603
3662	5322 117 11726	10Ω 5%
3732	4822 051 30152	1.5kΩ 5% 0.062W
3732	4822 051 30272	2.7kΩ 5% 0.062W
3733	4822 051 30102	1kΩ 5% 0.062W
3733	4822 051 30221	220Ω 5% 0.062W
3742	4822 051 30152	1.5kΩ 5% 0.062W
3742	4822 051 30272	2.7kΩ 5% 0.062W
3743	4822 051 30102	1kΩ 5% 0.062W
3743	4822 051 30221	220Ω 5% 0.062W
3749	4822 051 30103	10kΩ 5% 0.062W
3750	4822 051 30471	470Ω 5% 0.062W
3751	4822 117 12925	47kΩ 1% 0.063W 0603
3752	4822 117 12925	47kΩ 1% 0.063W 0603
3754	4822 051 30102	1kΩ 5% 0.062W
3755	4822 117 13632	100kΩ 1% 0603 0.62W
3760	4822 051 30471	470Ω 5% 0.062W
3765	4822 117 13632	100kΩ 1% 0603 0.62W
3770	4822 117 13632	100kΩ 1% 0603 0.62W
3771	4822 117 13632	100kΩ 1% 0603 0.62W
3780	4822 117 13632	100kΩ 1% 0603 0.62W
3781	4822 117 13632	100kΩ 1% 0603 0.62W

5335	4822 157 11717	BLM31P500SPT
5360	4822 157 11717	BLM31P500SPT
5365	2422 536 00338	33µH 10% SMD 10mm
5435	4822 157 11717	BLM31P500SPT
5460	4822 157 11717	BLM31P500SPT
5465	2422 536 00338	33µH 10% SMD 10mm
5535	4822 157 11717	BLM31P500SPT
5560	4822 157 11717	BLM31P500SPT
5565	2422 536 00338	33µH 10% SMD 10mm
5635	4822 157 11717	BLM31P500SPT
5660	4822 157 11717	BLM31P500SPT
5665	2422 536 00338	33µH 10% SMD 10mm
5714	4822 157 11717	BLM31P500SPT
5719	4822 157 11717	BLM31P500SPT
5725	4822 157 11717	BLM31P500SPT
5753	2422 549 43769	Bead 30Ω at 100MHz

6328	4822 130 11397	BAS316
6334	4822 130 11148	UDZ4.7B
6335	4822 130 11148	UDZ4.7B
6355	4822 130 11148	UDZ4.7B
6356	4822 130 11148	UDZ4.7B
6359	4822 130 11148	UDZ4.7B
6360	4822 130 11148	UDZ4.7B
6428	4822 130 11397	BAS316
6434	4822 130 11148	UDZ4.7B
6435	4822 130 11148	UDZ4.7B
6455	4822 130 11148	UDZ4.7B
6456	4822 130 11148	UDZ4.7B
6459	4822 130 11148	UDZ4.7B
6460	4822 130 11148	UDZ4.7B
6528	4822 130 11397	BAS316
6534	4822 130 11148	UDZ4.7B
6535	4822 130 11148	UDZ4.7B
6555	4822 130 11148	UDZ4.7B
6556	4822 130 11148	UDZ4.7B
6559	4822 130 11148	UDZ4.7B
6560	4822 130 11148	UDZ4.7B
6628	4822 130 11397	BAS316
6634	4822 130 11148	UDZ4.7B
6635	4822 130 11148	UDZ4.7B
6655	4822 130 11148	UDZ4.7B
6656	4822 130 11148	UDZ4.7B
6659	4822 130 11148	UDZ4.7B
6660	4822 130 11148	UDZ4.7B
6732	4822 130 11551	UDZS10B
6742	4822 130 11551	UDZS10B
6750	4822 130 10328	BAV99W
6760	4822 130 10328	BAV99W

7211	3198 010 42320	BC857BW
7211	5322 130 42756	BC857C
7225	4822 209 30095	LM833D
7238	4822 209 30095	LM833D
7260	4822 209 30095	LM833D
7302	3198 010 42310	BC847BW
7303	3198 010 42310	BC847BW
7315	9338 028 20668	LM311D
7330	4822 130 42804	BC817-25
7340	3198 010 42310	BC847BW
7355	5322 130 60845	BC807-25
7365	9322 161 86668	IRF7343
7402	3198 010 42310	BC847BW
7403	3198 010 42310	BC847BW
7415	9338 028 20668	LM311D
7430	4822 130 42804	BC817-25
7440	3198 010 42310	BC847BW
7455	5322 130 60845	BC807-25
7465	9322 161 86668	IRF7343
7502	3198 010 42310	BC847BW
7503	3198 010 42310	BC847BW
7515	9338 028 20668	LM311D
7530	4822 130 42804	BC817-25
7540	3198 010 42310	BC847BW
7555	5322 130 60845	BC807-25
7565	9322 161 86668	IRF7343
7602	3198 010 42310	BC847BW
7603	3198 010 42310	BC847BW
7615	9338 028 20668	LM311D
7630	4822 130 42804	BC817-25
7640	3198 010 42310	BC847BW
7655	5322 130 60845	BC807-25
7665	9322 161 86668	IRF7343
7735	4822 130 60142	BC869
7735	9322 168 88668	LM317D2T
7736	3198 010 42310	BC847BW
7745	5322 130 61569	BC868
7745	9322 150 89668	LM337D2T
7746	3198 010 42320	BC857BW
7746	5322 130 42756	BC857C
7751	3198 010 42310	BC847BW
7753	3198 010 42320	BC857BW
7753	5322 130 42756	BC857C
7755	3198 010 42310	BC847BW
7761	3198 010 42320	BC857BW
7761	5322 130 42756	BC857C

EMC Filter Panel [EMC]

Various

0002	3122 358 76831	EMC foam fiter panel
1320	2422 025 16545	Connector 10P m
1330	2422 025 16545	Connector 10P m
1345	2422 025 16835	Connector 3P
1355	2422 025 16835	Connector 3P

2300	5322 126 11583	10nF 10% 50V 0603
2301	5322 126 11583	10nF 10% 50V 0603
2302	3198 016 31020	1nF 10% 25V 0603
2303	5322 126 11583	10nF 10% 50V 0603
2304	5322 126 11583	10nF 10% 50V 0603
2305	5322 126 11583	10nF 10% 50V 0603
2306	5322 126 11583	10nF 10% 50V 0603
2307	5322 126 11583	10nF 10% 50V 0603
2308	5322 126 11583	10nF 10% 50V 0603

3300	4822 051 30101	100Ω 5% 0.062W
3301	4822 051 30101	100Ω 5% 0.062W
3302	4822 051 30101	100Ω 5% 0.062W
3303	4822 051 30101	100Ω 5% 0.062W
3304	4822 051 30101	100Ω 5% 0.062W
3305	4822 051 30101	100Ω 5% 0.062W
3306	4822 051 30101	100Ω 5% 0.062W
3307	4822 051 30101	100Ω 5% 0.062W

5300	2422 549 43062	Bead 600Ω at 100MHz
5301	2422 549 43062	Bead 600Ω at 100MHz
5302	2422 549 43062	Bead 600Ω at 100MHz
5303	2422 549 43062	Bead 600Ω at 100MHz
5304	2422 549 43062	Bead 600Ω at 100MHz
5305	2422 549 43062	Bead 600Ω at 100MHz
5306	2422 549 43062	Bead 600Ω at 100MHz
5307	2422 549 43062	Bead 600Ω at 100MHz
5308	2422 549 43062	Bead 600Ω at 100MHz
5309	2422 549 43062	Bead 600Ω at 100MHz
5310	2422 549 43062	Bead 600Ω at 100MHz
5311	2422 549 43062	Bead 600Ω at 100MHz
5312	2422 549 43062	Bead 600Ω at 100MHz
5313	2422 549 43062	Bead 600Ω at 100MHz

LED/Switch Panel [LD]

Various

0040	3122 128 14292	Mains knob FM24 SL
0044	3122 124 36081	Day light filter
0317	2422 025 13369	Socket 6P (Telephone)
0320	2422 025 16545	Connector 10P m
1101	2422 128 02927	Switch push 2P
1101	4822 276 13483	Switch push 2P 25V h
1320	2422 025 16545	Connector 10P m
8320	3122 358 76521	Cable L20-S20 FM24

2107	4822 124 12095	100µF 20% 16V
2120	2020 024 90166	10µF 20% 35V
2126	2020 552 96326	220nF 10% 16V

3101	4822 051 30151	150Ω 5% 0.062W

3102	4822 117 13632	100kΩ 1% 0603 0.62W
3103	4822 051 30102	1kΩ 5% 0.062W
3103	4822 051 30221	220Ω 5% 0.062W
3104	4822 117 13632	100kΩ 1% 0603 0.62W
3105	4822 051 30102	1kΩ 5% 0.062W
3105	4822 051 30331	330Ω 5% 0.062W
3106	4822 051 30151	150Ω 5% 0.062W
3107	4822 051 30471	470Ω 5% 0.062W
3108	4822 051 30103	10kΩ 5% 0.062W
3109	4822 051 30101	100Ω 5% 0.062W
3120	4822 051 30472	4.7kΩ 5% 0.062W
3121	4822 051 30472	4.7kΩ 5% 0.062W
3122	4822 051 30102	1kΩ 5% 0.062W
3123	4822 051 30103	10kΩ 5% 0.062W
3124	4822 051 30102	1kΩ 5% 0.062W
3125	4822 051 30332	3.3kΩ 5% 0.062W
3126	4822 051 30474	470kΩ 5% 0.062W
3127	4822 051 30474	470kΩ 5% 0.062W
4101	4822 051 30008	Jumper 0603
4107	4822 051 30008	Jumper 0603

5100	2422 549 43769	Bead 30Ω at 100MHz

6101	4822 130 11564	UDZ3.9B
6103	4822 130 83915	TLMV3100
6105	4822 130 11564	UDZ3.9B
6127	9322 140 63685	TEMD5000

7103	3198 010 42320	BC857BW
7103	5322 130 42756	BC857C
7103	9340 218 50115	BC857BW
7105	3198 010 42320	BC857BW
7105	5322 130 42756	BC857C
7105	9340 218 50115	BC857BW
7107	9322 155 82667	TSOP2236
7107	9322 155 98667	TSOP2236YA1
7107	9322 178 03667	TSOP2136YA1
7120	5322 209 82941	LM358D

Power Supply Panel FM23 AC [P]

Various

0003	3122 128 13822	Shielding frame
0003	3122 128 13913	Mounting kit assy
0006▲	4822 265 11253	Fuse holder 2p
0008▲	4822 265 11253	Fuse holder 2p
0010	3122 421 60171	Spring
0011	3122 421 60171	Spring
0015	4822 695 00005	Insulating plate
0016	3122 121 67211	Clip max247
0017	3122 121 67201	Clip large
0018	3122 121 67201	Clip large
0020	3122 121 67191	Clip small
0021	3122 121 67191	Clip small
0022	3122 121 67191	Clip small
0023	3122 121 67191	Clip small
0024	3122 121 67191	Clip small
0025	3122 121 67191	Clip small
0040	2413 015 00065	Cable tie BT18R/4B
0041	3122 124 36011	Thermo foam
0205	3104 308 78231	Transistor cooling clip
0206	3104 308 78231	Transistor cooling clip
0302	2422 025 10769	Connector 9P
0305	2422 025 10772	Connector 12P m
0306	2422 025 08149	Connector 6p m
0307	2422 025 17154	Connector 20P f
0307	2422 025 17759	Connector 20P f
0308▲	4822 265 20723	Connector 2p m
0319	2422 025 10668	Connector 13P m
0323	2422 025 15085	Connector 10P m
0333	2422 025 12827	Connector 9P m 3.96
0342	4822 267 10618	Connector 7P
0352	4822 267 10618	Connector 7P
0389	4822 267 10735	Connector 3p m
0390	4822 267 10735	Connector 3p m
0392	2422 025 09406	Connector 4p
1004▲	4822 070 32002	Fuse 2A
1005▲	4822 071 55002	Fuse T5A 250V
1041	4822 071 55002	Fuse T5A 250V
1042	4822 071 55002	Fuse T5A 250V
1045▲	4822 071 55002	Fuse T5A 250V
1084▲	2422 086 10849	Fuse F1A 250V
1084	4822 071 31002	Fuse F1A 250V
1084	9965 000 07788	Fuse T2A 250V
1110▲	4822 071 55002	Fuse T5A 250V
1200▲	9965 000 07788	Fuse T2A 250V
1260▲	2122 662 00107	Fuse RR60-075 A
1400▲	4822 253 30467	Fuse 6.3A
1401▲	9965 000 07788	Fuse T2A 250V
1402▲	4822 252 60151	Sparkgap dsp501
1450▲	4822 280 10382	SDT-SS-109DM
1460▲	4822 280 10382	SDT-SS-109DM
8303	3122 358 76301	Tree assy A03-LS left
8304	3122 358 76291	Tree assy A04-LS right

2000	2020 554 90148	470pF 20% 250V
2001	2222 151 90048	47µF 20% 400V
2001	2222 151 90062	47µF 20% 450V
2002	4822 124 41751	47µF 20% 50V
2003	4822 124 12056	1000µF 20% 35V
2004	2222 464 90017	200pF 2% 630V
2005	4822 121 51288	100pF 630V
2006	3198 016 31020	1nF 10% 25V 0603
2007	2238 586 59812	100nF 20-80% 50V 0603
2007	4822 126 14305	100nF 10% 16V 0603
2008	5322 126 11583	10nF 10% 50V 0603
2009	4822 124 22652	2.2µF 20% 50V
2010	5322 126 11583	10nF 10% 50V 0603
2011	2222 375 90161	18nF 1.6kV 5%
2011	4822 121 70617	10nF 5% 1,6kV
2012	4822 126 11254	330pF 10% 2kV
2012	4822 126 13864	330PF 10% 2KV
2013	4822 126 11254	330pF 10% 2kV
2013	4822 126 13864	330PF 10% 2KV
2014	4822 126 13862	1.5nF 10% 2kV
2015	5322 126 11583	10nF 10% 50V 0603
2016	4822 124 22652	2.2µF 20% 50V
2017	4822 121 70617	10nF 5% 1,6kV
2020	2222 056 59222	2200µF 100V 20%
2021	2222 056 59222	2200µF 100V 20%
2022	4822 124 12056	1000µF 20% 35V
2023	2238 586 59812	100nF 20-80% 50V 0603
2023	4822 126 14305	100nF 10% 16V 0603
2024	4822 126 14043	1µF 20% 16V
2024	5322 126 11579	3.3nF 10% 63V
2025	2020 321 90041	180nF 250V 5%
2026	4822 126 14238	2.2nF 50V 0603
2027	3198 017 31530	15nF 20% 50V 0603
2028	2238 930 11541	220pF 5% 200V
2028	4822 126 13883	220pF 5% 50V
2029	4822 126 13883	220pF 5% 50V
2030	2238 586 59812	100nF 20-80% 50V 0603
2030	4822 126 14305	100nF 10% 16V 0603
2032	2238 916 15641	22nF 10% 25V 0603
2032	4822 126 14494	22nF 10% 25V 0603
2033	2238 586 59812	100nF 20-80% 50V 0603
2033	4822 126 14305	100nF 10% 16V 0603
2034	4822 126 11979	27pF 5% 2KV
2035	2238 586 15623	1nF 10% 50V 0603
2036	2238 916 15641	22nF 10% 25V 0603
2036	4822 126 14494	22nF 10% 25V 0603
2038	3198 016 31020	1nF 10% 25V 0603
2040	2238 586 59812	100nF 20-80% 50V 0603
2040	4822 126 14305	100nF 10% 16V 0603
2041	4822 126 13883	220pF 5% 50V
2042	4822 126 13883	220pF 5% 50V
2043	2020 021 91543	47µF 20% 160V
2043	2222 056 59222	2200µF 100V 20%
2044	2238 930 11541	220pF 5% 200V
2044	4822 126 13883	220pF 5% 50V
2045	4822 126 13883	220pF 5% 50V
2050	2238 586 59812	100nF 20-80% 50V 0603
2050	4822 126 14305	100nF 10% 16V 0603
2054	2020 552 94427	100pF 5% 50v 0603
2054	2238 606 11536	100pF 5% 100V
2054	4822 122 31765	100pF 2% 63V
2055	2238 606 11547	680pF 5% 680V
2055	3198 016 31020	1nF 10% 25V 0603
2058	4822 124 40756	1µF20% 100V
2059	2238 586 59812	100nF 20-80% 50V 0603
2059	4822 126 14305	100nF 10% 16V 0603
2061	2238 586 59812	100nF 20-80% 50V 0603
2061	4822 126 14305	100nF 10% 16V 0603
2090	4822 124 40196	220µF 20% 16V
2090	4822 124 40769	4.7µF 20% 100V
2111	4822 126 13883	220pF 5% 50V
2112	3198 016 31020	1nF 10% 25V 0603
2113	2020 012 93505	10µF 20% 25V
2113	4822 124 12379	220µF 25V
2113	4822 124 80144	220µF 20% 25V
2113	4822 124 80195	470µF 20% 10V
2113	4822 124 80875	220µF 20% 25V
2114	4822 126 13473	220nF 80-20% 50V
2117	2222 780 15656	330nF 10% 16V
2117	4822 126 12102	330nF 10% 16V 0805
2118	4822 126 11382	1nF 10% 1kV
2118	4822 126 13449	1nF 10% 2KV
2121	2222 056 59222	2200µF 100V 20%
2122	4822 121 51319	1µF 10% 63V
2123	4822 126 14043	1µF 20% 16V
2123	5322 126 11579	3.3nF 10% 63V
2126	2238 586 59812	100nF 20-80% 50V 0603
2126	4822 126 14305	100nF 10% 16V 0603
2133	3198 029 32290	22µF 20% 25V
2137	4822 126 14305	100nF 10% 16V 0603
2138	4822 124 21913	1µF 20% 63V
2203	2238 586 59812	100nF 20-80% 50V 0603
2203	4822 126 14305	100nF 10% 16V 0603
2205	2020 552 95447	2.2µF 20% 16V
2205	3198 032 64090	2.2µF 20% 25V
2210	4822 124 40433	47µF 20% 25V
2211	4822 126 13883	220pF 5% 50V
2212	2238 586 59812	100nF 20-80% 50V 0603
2212	4822 126 13879	220nF 20% 16V
2212	4822 126 14305	100nF 10% 16V 0603
2217	2222 780 15656	330nF 10% 16V
2217	4822 126 12102	330nF 10% 16V 0805
2218	2020 558 90609	4.7nF 10% 1kV
2218	2222 375 90141	3.3nF 1.6kV 5%
2219	2020 021 91543	47µF 20% 160V
2219	2222 151 90048	47µF 20% 400V
2222	2020 552 94427	100pF 5% 50v 0603
2222	4822 122 31765	100pF 2% 63V
2223	2020 552 94427	100pF 5% 50v 0603
2223	4822 122 31765	100pF 2% 63V
2224	2020 021 91551	2200µF 20% 25V
2225	2020 021 91551	2200µF 20% 25V
2226	2238 586 59812	100nF 20-80% 50V 0603
2226	4822 126 14305	100nF 10% 16V 0603
2227	2020 552 94427	100pF 5% 50v 0603
2227	4822 122 31765	100pF 2% 63V
2228	2020 021 91411	1000µF 20% 35V
2230	5322 121 10472	47µF
2231	5322 121 10472	47µF
2232	2020 552 94427	100pF 5% 50v 0603
2232	4822 122 31765	100pF 2% 63V
2260	4822 126 14043	1µF 20% 16V
2261	2020 021 91411	1000µF 20% 35V
2262	4822 126 13473	220nF 80-20% 50V
2263	2222 861 15272	2.7nF 5% 50V 0805
2264	4822 121 51252	470nF 5% 63V
2264	4822 126 13482	470nF 80-20% 16V
2265	4822 126 14241	330pF 50V 0603
2266	2238 916 15641	22nF 10% 25V 0603
2266	4822 126 14494	22nF 10% 25V 0603
2267	5322 126 10223	4.7nF 10% 63V
2268	4822 126 13473	220nF 80-20% 50V
2269	2020 021 91524	220µF 20% 25V
2270	4822 124 40433	47µF 20% 25V
2290	5322 126 11583	10nF 10% 50V 0603
2291	4822 126 13883	220pF 5% 50V
2292	2020 021 91354	1000µF 20% 50V
2293	4822 126 13883	220pF 5% 50V
2294	2020 021 91354	1000µF 20% 50V
2303	4822 121 42408	220nF 10% 50V
2304	2238 586 59812	100nF 20-80% 50V 0603
2304	3198 016 31020	1nF 10% 25V 0603
2304	4822 126 14305	100nF 10% 16V 0603
2305	2238 586 59812	100nF 20-80% 50V 0603
2305	4822 126 14305	100nF 10% 16V 0603
2306	2238 586 59812	100nF 20-80% 50V 0603
2306	4822 126 14305	100nF 10% 16V 0603
2316	2238 586 59812	100nF 20-80% 50V 0603
2322	2238 586 59812	100nF 20-80% 50V 0603
2322	4822 126 14305	100nF 10% 16V 0603
2324	2238 586 59812	100nF 20-80% 50V 0603
2324	4822 126 14305	100nF 10% 16V 0603
2343	4822 124 22652	2.2µF 20% 50V
2350	4822 124 40207	100µF 20% 25V
2352	2238 586 59812	100nF 20-80% 50V 0603
2352	4822 126 14305	100nF 10% 16V 0603
2364	2238 586 59812	100nF 20-80% 50V 0603
2364	4822 126 14305	100nF 10% 16V 0603
2366	4822 126 14585	100nF 10% 50V
2370	2238 586 59812	100nF 20-80% 50V 0603
2370	4822 126 14305	100nF 10% 16V 0603
2376	2238 586 59812	100nF 20-80% 50V 0603
2376	4822 126 14305	100nF 10% 16V 0603
2380	2238 586 59812	100nF 20-80% 50V 0603
2380	3198 016 31020	1nF 10% 25V 0603
2381	2238 586 59812	100nF 20-80% 50V 0603
2381	4822 126 14305	100nF 10% 16V 0603
2382	3198 016 31020	1nF 10% 25V 0603
2385	3198 017 41050	1µF 10V 0603
2393	2238 586 59812	100nF 20-80% 50V 0603
2393	4822 126 14305	100nF 10% 16V 0603
2396	4822 121 42408	220nF 10% 50V
2400	4822 126 13589	470nF 275V

2401	4822 121 10512	275V 220N 20%
2401	4822 126 13589	470nF 275V
2402	2020 554 90148	470pF 20% 250V
2403	2020 554 90148	470pF 20% 250V
2404	4822 126 14525	47pF 5% 1kV
2405	2020 554 90148	470pF 20% 250V
2405	4822 126 13841	1nF 20% 250V
2406	4822 126 14525	47pF 5% 1kV
2407	2020 554 90148	470pF 20% 250V
2465	4822 124 40207	100µF 20% 25V
2503	2222 151 90061	22µF 20% 450V
2503	2222 151 90062	47µF 20% 450V
2504	5322 126 11578	1nF 10% 50V 0603
2505	2020 021 91354	1000µF 20% 50V
2505	3198 028 44790	47µF 20% 35V
2507	2020 552 94427	100pF 5% 50v 0603
2507	4822 122 31765	100pF 2% 63V
2508	4822 124 12032	4.7µF 20% 50V
2509	2020 552 94427	100pF 5% 50v 0603
2509	4822 122 31765	100pF 2% 63V
2510	4822 124 81145	1000µF 16V 20%
2511	2238 586 59812	100nF 20-80% 50V 0603
2511	4822 126 14305	100nF 10% 16V 0603
2512	2238 586 59812	100nF 20-80% 50V 0603
2512	4822 126 14305	100nF 10% 16V 0603
2513	2238 586 59812	100nF 20-80% 50V 0603
2513	4822 126 14305	100nF 10% 16V 0603
2530	4822 124 40207	100µF 20% 25V
2530	5322 124 40641	10µF 20% 100V
2532	4822 124 40207	100µF 20% 25V
2533	4822 124 40207	100µF 20% 25V
2540	4822 124 40207	100µF 20% 25V
2541	4822 124 40207	100µF 20% 25V
2600	4822 122 33799	1nF 10% 1kV
2601	4822 122 33799	1nF 10% 1kV
2605	2222 479 90086	1µF 400V 5%
2608	3198 016 31020	1nF 10% 25V 0603
2610	4822 121 70581	1.5nF 5% 2kV
2612	5322 126 11578	1nF 10% 50V 0603
2613	5322 126 11578	1nF 10% 50V 0603
2616	2222 157 57331	330UF 30X50 450V
2640	4822 126 13881	470pF 5% 50V
2641	3198 016 31020	1nF 10% 25V 0603
2642	3198 016 31020	1nF 10% 25V 0603
2651	5322 126 11583	10nF 10% 50V 0603
2653	4822 126 14241	330pF 50V 0603
2654	4822 124 40433	47µF 20% 25V
2655	2238 780 15654	220nF 10% 16V
2655	4822 121 51319	1µF 10% 63V
2656	2238 586 59812	100nF 20-80% 50V 0603
2656	4822 126 14305	100nF 10% 16V 0603
2662	4822 124 80061	1000µF 20% 25V
2663	4822 124 40207	100µF 20% 25V
2664	4822 124 40207	100µF 20% 25V
2665	4822 126 13881	470pF 5% 50V
2666	4822 126 13193	4.7nF 10% 63V
2670	2238 586 59812	100nF 20-80% 50V 0603
2670	4822 126 14305	100nF 10% 16V 0603
2671	2238 586 59812	100nF 20-80% 50V 0603
2671	3198 017 34730	47nF 16V 0603
2671	4822 126 14305	100nF 10% 16V 0603
2672	2238 586 59812	100nF 20-80% 50V 0603
2672	4822 126 14305	100nF 10% 16V 0603
2673	4822 121 43343	4.7nF 10% 400V
2674	4822 121 41664	22nF 10% 400V
2700	4822 124 80791	470µF 20% 16V
2701	5322 126 11583	10nF 10% 50V 0603
2703	4822 124 80791	470µF 20% 16V
2707	5322 126 11583	10nF 10% 50V 0603
2709	4822 124 80791	470µF 20% 16V

–WW–

3003	4822 117 13632	100kΩ 1% 0603 0.62W
3004	4822 051 30153	15kΩ 5% 0.062W
3005	4822 051 20393	39kΩ 5% 0.1W
3005	4822 051 30333	33kΩ 5% 0.062W
3006	4822 051 30103	10kΩ 5% 0.062W
3007	4822 051 20472	4.7kΩ 5% 0.1W
3007	4822 051 30472	4.7kΩ 5% 0.062W
3008	4822 051 30102	1kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3010	4822 051 30153	15kΩ 5% 0.062W
3011	4822 051 30561	560Ω 5% 0.062W
3012	4822 051 20472	4.7kΩ 5% 0.1W
3012	4822 051 30472	4.7kΩ 5% 0.062W
3013	4822 051 30103	10kΩ 5% 0.062W
3014	4822 116 52191	33Ω 5% 0.5W
3015	4822 116 52176	10Ω 5% 0.5W
3016	4822 051 30102	1kΩ 5% 0.062W
3017	4822 116 52191	33Ω 5% 0.5W
3018	4822 116 52176	10Ω 5% 0.5W
3019	4822 051 30102	1kΩ 5% 0.062W
3020	4822 051 30563	56kΩ 5% 0.062W
3021	4822 053 11688	6.8Ω 5% 2W
3022	4822 051 30331	330Ω 5% 0.062W
3023	4822 117 12902	8.2kΩ 1% 0.063W 0603
3023	4822 117 12925	47kΩ 1% 0.063W 0603
3024	4822 050 27503	75kΩ 1% 0,6W
3025	4822 117 12903	1.8kΩ 1% 0.063W 0603
3026	4822 101 11186	470Ω 30% 0.1W
3026	4822 101 11383	470Ω 30% LIN
3027	4822 117 12925	47kΩ 1% 0.063W 0603
3028	4822 117 10362	7.5kΩ 1% 0,1W
3029	4822 051 30102	1kΩ 5% 0.062W
3030	4822 051 30183	18kΩ 5% 0.062W
3031	2322 704 61103	11kΩ 1% 0603
3032	2322 704 61103	11kΩ 1% 0603
3033	4822 051 30222	2.2kΩ 5% 0.062W
3037	4822 051 30103	10kΩ 5% 0.062W
3038	4822 117 13632	100kΩ 1% 0603 0.62W
3039	4822 051 30105	1MΩ 5% 0.062W
3040	4822 117 10837	100kΩ 1% 0.1W
3041	4822 051 30333	33kΩ 5% 0.062W
3042	4822 051 30471	470Ω 5% 0.062W
3043	4822 051 20472	4.7kΩ 5% 0.1W
3043	4822 051 30472	4.7kΩ 5% 0.062W
3044	4822 051 30102	1kΩ 5% 0.062W
3045	4822 051 30102	1kΩ 5% 0.062W
3046	4822 053 20565	5.6MΩ 5% 0.25W
3047	4822 051 30154	150kΩ 5% 0.062W
3048	4822 051 20472	4.7kΩ 5% 0.1W
3048	4822 051 30472	4.7kΩ 5% 0.062W
3049	4822 051 30123	12kΩ 5% 0.062W
3050▲	4822 052 10398	3.9Ω 5% 0,33W
3051	4822 051 20399	39Ω 5% 0.1W
3052	2322 662 93135	100Ω PTC 500V
3053	2322 662 93131	10Ω PTC
3053	2322 662 93135	100Ω PTC 500V
3054	4822 050 21003	10kΩ 1% 0.6W
3056	4822 051 30331	330Ω 5% 0.062W
3057	4822 051 30101	100Ω 5% 0.062W
3057	4822 051 30331	330Ω 5% 0.062W
3058	2322 730 61224	220kΩ 5% 0.062W 0805
3058	4822 051 20105	1MΩ 5% 0.1W
3061	4822 117 12925	47kΩ 1% 0.063W 0603
3062	4822 051 30102	1kΩ 5% 0.062W
3064	4822 051 30103	10kΩ 5% 0.062W
3065	4822 051 30102	1kΩ 5% 0.062W
3066	4822 051 30103	10kΩ 5% 0.062W
3067	4822 051 30153	15kΩ 5% 0.062W
3070	4822 051 30103	10kΩ 5% 0.062W
3071	4822 117 12925	47kΩ 1% 0.063W 0603
3075	4822 116 83866	1MΩ 5% 0.5W
3076	4822 117 13632	100kΩ 1% 0603 0.62W
3077	4822 116 83866	1MΩ 5% 0.5W
3078	4822 117 13632	100kΩ 1% 0603 0.62W
3080	4822 051 30101	100Ω 5% 0.062W
3081	4822 051 30222	2.2kΩ 5% 0.062W
3082	4822 051 30103	10kΩ 5% 0.062W
3083	4822 051 10102	1kΩ 2% 0.25W
3084	4822 051 30103	10kΩ 5% 0.062W
3085	4822 117 12925	47kΩ 1% 0.063W 0603
3086	4822 117 12925	47kΩ 1% 0.063W 0603
3087	4822 117 12925	47kΩ 1% 0.063W 0603
3088	4822 117 12925	47kΩ 1% 0.063W 0603
3090	4822 051 30101	100Ω 5% 0.062W
3090	4822 051 30471	470Ω 5% 0.062W
3091	4822 051 30102	1kΩ 5% 0.062W
3092	4822 051 30471	470Ω 5% 0.062W
3092	4822 051 30472	4.7kΩ 5% 0.062W
3093	4822 051 30102	1kΩ 5% 0.062W
3095	4822 051 30471	470Ω 5% 0.062W
3096	4822 051 30562	5.6kΩ 5% 0.063W 0603
3097	4822 117 12968	820Ω 5% 0.62W
3110	4822 051 30102	1kΩ 5% 0.062W
3111	4822 051 30102	1kΩ 5% 0.062W
3112	4822 051 30102	1kΩ 5% 0.062W
3113	4822 051 30474	470kΩ 5% 0.062W
3114	4822 051 20564	560kΩ 5% 0.1W
3115	4822 117 12891	220kΩ 1% 0.063W 0603
3116	4822 051 30102	1kΩ 5% 0.062W
3117	4822 051 30103	10kΩ 5% 0.062W
3118	4822 116 83303	0.1Ω 2W
3119	4822 116 83303	0.1Ω 2W
3120	4822 051 30331	330Ω 5% 0.062W
3120	4822 117 12903	1.8kΩ 1% 0.063W 0603
3121	4822 117 12902	8.2kΩ 1% 0.063W 0603
3121	4822 117 12925	47kΩ 1% 0.063W 0603
3122	2322 734 67503	75kΩ 1% 0.062W 0805
3123	4822 117 10965	18kΩ 1% 0.1W
3124	2120 108 94004	7.5kΩ 1% 0603
3125	2120 108 94004	7.5kΩ 1% 0603
3126	4822 051 30222	2.2kΩ 5% 0.062W
3127	4822 101 11187	1kΩ 30% 0,1W
3128	4822 051 30333	33kΩ 5% 0.062W
3129	4822 053 10103	10kΩ 5% 1W
3130	4822 051 30102	1kΩ 5% 0.062W
3131	2322 704 61103	11kΩ 1% 0603
3132	4822 051 30103	10kΩ 5% 0.062W
3133	4822 051 30101	100Ω 5% 0.062W
3133	4822 051 30331	330Ω 5% 0.062W
3134	4822 051 30331	330Ω 5% 0.062W
3135	4822 117 12925	47kΩ 1% 0.063W 0603
3136	4822 117 12925	47kΩ 1% 0.063W 0603
3137	4822 117 12925	47kΩ 1% 0.063W 0603
3138	4822 117 11503	220Ω 1% 0.1W
3139	4822 117 11503	220Ω 1% 0.1W
3140	2322 734 67503	75kΩ 1% 0.062W 0805
3141	2322 734 67503	75kΩ 1% 0.062W 0805
3142	5322 117 12487	1kΩ 1% 0.125W
3143	4822 053 11472	4kΩ 5% 2W
3146	2306 327 90035	Jump. 0.22Ω
3147	2322 704 61103	11kΩ 1% 0603
3200	2322 730 61224	220kΩ 5% 0.062W 0805
3201	4822 053 10103	10kΩ 5% 1W
3202	4822 051 30479	47Ω 5% 0.062W
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 117 13632	100kΩ 1% 0603 0.62W
3205	4822 117 13632	100kΩ 1% 0603 0.62W
3212	4822 051 30102	1kΩ 5% 0.062W
3213	4822 051 30105	1MΩ 5% 0.062W
3214	4822 117 12889	270kΩ 1% 0.063W 0603
3216	4822 051 30102	1kΩ 5% 0.062W
3217	4822 051 30103	10kΩ 5% 0.062W
3218	4822 116 83303	0.1Ω 2W
3219	4822 116 83303	0.1Ω 2W
3224	5322 117 13028	12kΩ 1% 0.063W 0603
3225	2322 704 61103	11kΩ 1% 0603
3226	4822 051 30103	10kΩ 5% 0.062W
3228	4822 051 30151	150Ω 5% 0.062W
3240	4822 051 30102	1kΩ 5% 0.062W
3241	4822 051 30102	1kΩ 5% 0.062W
3260	4822 051 30102	1kΩ 5% 0.062W
3261	4822 051 30102	1kΩ 5% 0.062W
3262	4822 117 11188	20kΩ 1% 0,1W
3264	4822 051 30682	6.8kΩ 5% 0.062W
3265	4822 051 30102	1kΩ 5% 0.062W
3268	4822 051 30102	1kΩ 5% 0.062W
3268	4822 117 13632	100kΩ 1% 0603 0.62W
3292	4822 051 30561	560Ω 5% 0.062W
3300	4822 117 13579	220kΩ 1% 0.1W 0805
3301	4822 117 13579	220kΩ 1% 0.1W 0805
3302	2312 916 71004	100kΩ 1%
3302	4822 117 13579	220kΩ 1% 0.1W 0805
3302	8222 676 14191	100kΩ 1% 0.062W 0805
3303	2312 916 71004	100kΩ 1%
3303	4822 117 13579	220kΩ 1% 0.1W 0805
3303	8222 676 14201	57kΩ 1% 0.062W 0805
3304	4822 051 30102	1kΩ 5% 0.062W
3305	2312 916 76202	6.2kΩ 1%
3305	2322 704 61103	11kΩ 1% 0603
3305	4822 051 30008	Jumper 0603
3306	2322 704 61103	11kΩ 1% 0603
3307	2322 704 61103	11kΩ 1% 0603
3307	5322 117 13028	12kΩ 1% 0.063W 0603
3308	4822 051 30102	1kΩ 5% 0.062W
3309	4822 051 30102	1kΩ 5% 0.062W
3310	4822 051 30472	4.7kΩ 5% 0.062W
3311	4822 117 13579	220kΩ 1% 0.1W 0805
3312	4822 051 30102	1kΩ 5% 0.062W
3313	2120 108 94004	7.5kΩ 1% 0603
3313	2322 704 61103	11kΩ 1% 0603
3313	4822 117 11188	20kΩ 1% 0,1W
3314	2120 108 94004	7.5kΩ 1% 0603
3315	5322 117 12487	1kΩ 1% 0.125W
3316	2312 916 77502	7.5kΩ 1%
3316	4822 117 11596	390Ω 1% 0.1W
3317	2120 108 94004	7.5kΩ 1% 0603
3318	4822 051 30102	1kΩ 5% 0.062W
3319	4822 051 30472	4.7kΩ 5% 0.062W
3320	2322 704 61103	11kΩ 1% 0603
3320	4822 117 10833	10kΩ 1% 0.1W
3321	4822 051 30102	1kΩ 5% 0.062W
3322	4822 117 10833	10kΩ 1% 0.1W
3322	5322 117 13042	3.9kΩ 1% 0.063W 0603
3323	4822 117 10833	10kΩ 1% 0.1W
3323	5322 117 13028	12kΩ 1% 0.063W 0603
3324	4822 051 30102	1kΩ 5% 0.062W
3325	4822 051 30471	470Ω 5% 0.062W
3326	4822 051 30472	4.7kΩ 5% 0.062W
3327	4822 051 30103	10kΩ 5% 0.062W
3328	4822 051 30103	10kΩ 5% 0.062W
3330	4822 051 30102	1kΩ 5% 0.062W
3331	4822 051 30472	4.7kΩ 5% 0.062W
3332	4822 117 11144	3.9kΩ 1% 0.1W
3333	4822 051 30102	1kΩ 5% 0.062W
3334	4822 117 12955	2.7kΩ 1% 0.1W 0805
3335	4822 116 83933	15kΩ 1% 0.1W
3338	4822 051 30102	1kΩ 5% 0.062W
3339	4822 051 30472	4.7kΩ 5% 0.062W

3340	4822 051 30102	1kΩ 5% 0.062W
3341	4822 051 30103	10kΩ 5% 0.062W
3342	4822 051 30103	10kΩ 5% 0.062W
3343	4822 051 30102	1kΩ 5% 0.062W
3344	4822 051 30102	1kΩ 5% 0.062W
3345	4822 051 30472	4.7kΩ 5% 0.062W
3346	4822 051 30102	1kΩ 5% 0.062W
3347	4822 051 30331	330Ω 5% 0.062W
3348	4822 051 30331	330Ω 5% 0.062W
3349	4822 051 30102	1kΩ 5% 0.062W
3350	4822 051 30472	4.7kΩ 5% 0.062W
3351	4822 051 30103	10kΩ 5% 0.062W
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 051 30103	10kΩ 5% 0.062W
3354	4822 051 30472	4.7kΩ 5% 0.062W
3358	4822 051 30222	2.2kΩ 5% 0.062W
3359	4822 051 30472	4.7kΩ 5% 0.062W
3360	4822 117 11817	1.2kΩ 1% 1/16W
3361	4822 051 30472	4.7kΩ 5% 0.062W
3362	4822 051 30102	1kΩ 5% 0.062W
3363	4822 051 30102	1kΩ 5% 0.062W
3364	4822 051 30102	1kΩ 5% 0.062W
3365	4822 051 30102	1kΩ 5% 0.062W
3366	4822 051 30103	10kΩ 5% 0.062W
3367	4822 051 30103	10kΩ 5% 0.062W
3368	2120 660 90042	PTC 330Ω 16V
3369	4822 051 30272	2.7kΩ 5% 0.062W
3370	4822 051 30101	100Ω 5% 0.062W
3371	4822 051 30101	100Ω 5% 0.062W
3372	9337 224 50116	Temp sens. KTY81-210
3372	9337 224 60116	Temp sens. KTY81-220
3373	4822 051 30103	10kΩ 5% 0.062W
3373	4822 051 30472	4.7kΩ 5% 0.062W
3374	4822 117 12925	47kΩ 1% 0.063W 0603
3375	4822 117 12925	47kΩ 1% 0.063W 0603
3376	4822 117 12925	47kΩ 1% 0.063W 0603
3377	4822 051 30103	10kΩ 5% 0.062W
3377	4822 051 30472	4.7kΩ 5% 0.062W
3378	4822 051 30103	10kΩ 5% 0.062W
3378	4822 117 12925	47kΩ 1% 0.063W 0603
3380	4822 117 12925	47kΩ 1% 0.063W 0603
3381	4822 117 12925	47kΩ 1% 0.063W 0603
3382	4822 117 11449	2.2kΩ 5% 0.1W 0805
3382	4822 117 12955	2.7kΩ 1% 0.1W 0805
3382	5322 117 13039	222kΩ 1% 0.063W 0603
3382	8222 676 14211	4.75kΩ 1% 0.062W 0805
3383	4822 051 30471	470Ω 5% 0.062W
3384	4822 051 30471	470Ω 5% 0.062W
3385	4822 117 13632	100kΩ 1% 0603 0.62W
3386	4822 117 13632	100kΩ 1% 0603 0.62W
3387	4822 051 30471	470Ω 5% 0.062W
3388	4822 051 30102	1kΩ 5% 0.062W
3389	4822 051 30102	1kΩ 5% 0.062W
3390	4822 051 30102	1kΩ 5% 0.062W
3390	4822 051 30103	10kΩ 5% 0.062W
3391	4822 051 30103	10kΩ 5% 0.062W
3392	4822 051 30102	1kΩ 5% 0.062W
3393	4822 051 30102	1kΩ 5% 0.062W
3393	4822 051 30103	10kΩ 5% 0.062W
3394	4822 051 30102	1kΩ 5% 0.062W
3395	4822 051 30103	10kΩ 5% 0.062W
3396	2312 916 71004	100kΩ 1%
3397	2312 916 71004	100kΩ 1%
3400	2322 595 90021	VDR 1mA/495V 850V
3401	4822 117 10118	1MΩ 5% 0,5W
3402	4822 053 21475	4.7MΩ 5% 0,5W
3403	4822 053 21475	4.7MΩ 5% 0,5W
3404	4822 116 83872	220Ω 5% 0.5W
3450	2322 662 93131	10Ω PTC
3451	2322 662 93131	10Ω PTC
3452	2122 612 00051	NTC 1Ω 20%
3460	4822 051 30472	4.7kΩ 5% 0.062W
3461	4822 051 30103	10kΩ 5% 0.062W
3463	4822 051 30103	10kΩ 5% 0.062W
3465	4822 051 30103	10kΩ 5% 0.062W
3467	4822 051 30103	10kΩ 5% 0.062W
3469	4822 051 30472	4.7kΩ 5% 0.062W
3470	4822 051 30103	10kΩ 5% 0.062W
3501	4822 051 30101	100Ω 5% 0.062W
3502	4822 051 30471	470Ω 5% 0.062W
3503	5322 117 13026	4.7kΩ 1% 0.063W 0603
3503	5322 117 13042	3.9kΩ 1% 0.063W 0603
3504	5322 117 13024	33kΩ 1% 0.063W 0603
3505	4822 117 11139	1.5kΩ 1% 0.1W
3505	5322 117 13034	1.5kΩ 1% 0.063W 0603
3506	2322 662 93131	10Ω PTC
3507	4822 053 20225	2.2MΩ 5% 0.25W
3508	2322 194 63109	10Ω 5% 2W
3520	4822 051 30102	1kΩ 5% 0.062W
3520	4822 051 30109	10Ω 5% 0.062W
3530	4822 117 13632	100kΩ 1% 0603 0.62W
3608	4822 116 52179	12Ω 5% 0,5W
3610	5322 116 53564	3.3Ω 5% 0.5W
3611	4822 050 11002	1kΩ 1% 0.4W
3613	2120 106 90565	0.1Ω 5% 1W
3614	2120 106 90565	0.1Ω 5% 1W
3614	2120 106 90639	0.12Ω 5% 1W
3615	2120 106 90639	0.12Ω 5% 1W
3639	4822 051 30102	1kΩ 5% 0.062W
3640	4822 051 30331	330Ω 5% 0.062W
3641	4822 051 30471	470Ω 5% 0.062W
3642	4822 051 30101	100Ω 5% 0.062W
3650	2322 156 21305	1.3MΩ 1% 0,25W
3651	4822 051 30103	10kΩ 5% 0.062W
3651	4822 051 30472	4.7kΩ 5% 0.062W
3652	4822 051 30105	1MΩ 5% 0.062W
3653	4822 116 52231	820Ω 5% 0.5W
3654	4822 051 30103	10kΩ 5% 0.062W
3655	4822 051 30102	1kΩ 5% 0.062W
3663	4822 052 10108	1Ω 5% 0.33W
3664	4822 117 13579	220kΩ 1% 0.1W 0805
3665	4822 051 30103	10kΩ 5% 0.062W
3666	4822 116 52175	100Ω 5% 0.5W
3667	4822 051 30103	10kΩ 5% 0.062W
3668	4822 052 11102	1kΩ 5% 0,5W
3670	4822 050 27504	750kΩ 1% 0,6W
3671	4822 117 10833	10kΩ 1% 0.1W
3673	4822 052 11102	1kΩ 5% 0,5W
3674	4822 053 20105	1MΩ 5% 0,25W
3675	4822 053 10221	220Ω 5% 1W
3676	4822 053 10471	470Ω 5% 1W
3700	4822 051 30102	1kΩ 5% 0.062W
3700	4822 051 30331	330Ω 5% 0.062W
3701	4822 051 30102	1kΩ 5% 0.062W
3701	4822 051 30222	2.2kΩ 5% 0.062W
3702	4822 051 30102	1kΩ 5% 0.062W
3702	4822 051 30222	2.2kΩ 5% 0.062W
3703	4822 051 30101	100Ω 5% 0.062W
3703	4822 051 30102	1kΩ 5% 0.062W
3706	4822 051 30102	1kΩ 5% 0.062W
3706	4822 051 30331	330Ω 5% 0.062W
3707	4822 051 30102	1kΩ 5% 0.062W
3707	4822 051 30222	2.2kΩ 5% 0.062W
3708	4822 051 30102	1kΩ 5% 0.062W
3708	4822 051 30222	2.2kΩ 5% 0.062W
3709	4822 051 30101	100Ω 5% 0.062W
3709	4822 051 30102	1kΩ 5% 0.062W
3999	4822 051 30102	1kΩ 5% 0.062W
4268	4822 051 30008	Jumper 0603

5001	3128 138 38561	Transformer CE136H
5001	8222 289 53691	Driver transf. CE136H
5002▲	3128 138 40371	Transformer CE423D
5003	4822 157 71442	150µH 10%
5120	3128 138 40381	Inductor Coil CU20V
5200	3198 018 71010	100µF 10%
5213	2422 264 00433	Loudspeaker 8Ω 15W
5214	2422 264 00433	Loudspeaker 8Ω 15W
5215	2422 264 00432	Tweeter 8Ω 15W R49
5216	2422 264 00432	Tweeter 8Ω 15W R49
5220	3128 138 70541	Transformer CT296F
5224	2422 535 95273	6.8µH 20%
5225	2422 535 95273	6.8µH 20%
5260	3198 018 71010	100µF 10%
5268	2422 536 00288	100µH 10%
5290	3128 138 40391	Transformer CU15
5291	4822 157 71467	39µH 10%
5292	4822 157 71467	39µH 10%
5293	4822 157 71467	39µH 10%
5401▲	3122 138 38901	Mains filter CU28D3
5402▲	3122 138 38901	Mains filter CU28D3
5500▲	3128 138 40361	Transformer CE165T
5505	4822 157 71467	39µH 10%
5600	3128 138 40351	Coil CE423D
5612	4822 157 11411	Bead 83Ω at 100MHz
5703	4822 157 71414	1000µH 10%
5704	4822 157 11499	BLM11P600SPT
5709	4822 157 71414	1000µH 10%
5710	4822 157 11499	BLM11P600SPT

6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6007	4822 130 30621	1N4148
6008	4822 130 30621	1N4148
6009	4822 130 11397	BAS316
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6012	4822 130 34281	BZX79-B15
6013	4822 130 34281	BZX79-B15
6018	4822 130 11397	BAS316
6019	4822 130 11397	BAS316
6021	4822 130 32961	BYV28-200
6021	9340 550 66112	BYV28-200/24
6022	4822 130 11397	BAS316
6023	4822 130 11397	BAS316
6027	4822 130 30621	1N4148
6028	4822 130 30621	1N4148
6031	9322 129 37685	BZM55-C5V6
6032	9322 129 37685	BZM55-C5V6
6033	4822 130 11594	BZX284-C47
6034	4822 130 11397	BAS316
6035	4822 130 11397	BAS316
6041	9322 167 08687	STTH2003CF
6042	9322 150 18685	BZX384-C47
6044	9322 167 08687	STTH2003CF
6045	4822 130 32961	BYV28-200
6045	9340 550 66112	BYV28-200/24
6050	4822 130 31024	BZX79-B18
6053	4822 130 42488	BYD33D
6054	4822 130 42488	BYD33D
6055	4822 130 42488	BYD33D
6061	4822 130 31024	BZX79-B18
6075	9336 018 60133	BZT03-C300
6077	9336 018 60133	BZT03-C300
6082	4822 130 11397	BAS316
6086	4822 130 83757	BAS216
6095	4822 130 11397	BAS316
6111	4822 130 11397	BAS316
6112	4822 130 11397	BAS316
6113	4822 130 11397	BAS316
6117	4822 130 11152	UDZ18B
6120	4822 130 11596	BYW29EX-200
6123	4822 130 11397	BAS316
6132	4822 130 11397	BAS316
6133	4822 130 11397	BAS316
6142	4822 130 42488	BYD33D
6142	9340 550 66112	BYV28-200/24
6202	4822 130 11397	BAS316
6205	4822 130 11152	UDZ18B
6206	4822 130 11397	BAS316
6211	9322 128 65685	RS1G
6213	4822 130 11397	BAS316
6216	4822 130 11152	UDZ18B
6224	9322 164 40682	STPS20L40CF
6224	9322 173 47687	STPS20L40CFP
6225	9322 164 40682	STPS20L40CF
6225	9322 173 47687	STPS20L40CFP
6230	4822 130 42488	BYD33D
6230	5322 130 31938	BYV27-200
6230	9340 550 66112	BYV28-200/24
6232	4822 130 11522	UDZ15B
6260	4822 130 11421	BT151X-500R
6267	9322 161 77682	SB540L-7024
6290	4822 130 11596	BYW29EX-200
6291	9322 131 78682	D4SBL20
6293	4822 130 11596	BYW29EX-200
6312	4822 130 11397	BAS316
6312	4822 130 11528	1PS76SB10
6313	4822 130 11528	1PS76SB10
6314	4822 130 11397	BAS316
6321	4822 130 11397	BAS316
6321	4822 130 11528	1PS76SB10
6322	4822 130 11528	1PS76SB10
6324	4822 130 11397	BAS316
6325	4822 130 11416	PDZ6.8B
6333	4822 130 11397	BAS316
6333	4822 130 11528	1PS76SB10
6334	4822 130 11528	1PS76SB10
6335	4822 130 11397	BAS316
6340	4822 130 11397	BAS316
6340	4822 130 11528	1PS76SB10
6341	4822 130 11528	1PS76SB10
6342	4822 130 11397	BAS316
6344	4822 130 10838	UDZ3.3B
6347	4822 130 10654	BAT254
6348	4822 130 20297	BT169B
6362	4822 130 11397	BAS316
6364	4822 130 11397	BAS316
6365	4822 130 11397	BAS316
6375	4822 130 11397	BAS316
6376	4822 130 11397	BAS316
6378	4822 130 11528	1PS76SB10
6390	4822 130 11397	BAS316
6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6470	4822 130 11397	BAS316
6471	4822 130 11397	BAS316
6501	9336 018 60133	BZT03-C300
6502	9336 018 60133	BZT03-C300
6503	9322 128 65685	RS1G
6504	9322 128 65685	RS1G
6505	9322 161 76682	SB340L-7024
6510	9322 099 61685	BYG10J
6511	9322 099 61685	BYG10J
6512	9322 099 61685	BYG10J
6513	9322 099 61685	BYG10J

6520	4822 130 11397	BAS316
6530	4822 130 11152	UDZ18B
6531	4822 130 11152	UDZ18B
6600	9322 131 67679	GBU8JL-7000
6605	4822 130 80137	1N5406
6605	9322 161 81682	1N5406L-7024
6606	4822 130 80137	1N5406
6606	9322 161 81682	1N5406L-7024
6608	4822 130 11397	BAS316
6609	4822 130 32152	BZT03-C18
6611	3139 120 52021	BYV29X-500
6611	4822 130 83796	BYV29F-500
6640	9339 680 20115	PRLL5819
6641	4822 130 11397	BAS316
6642	9339 680 20115	PRLL5819
6643	4822 130 11152	UDZ18B
6651	9339 680 20115	PRLL5819
6652	9339 680 20115	PRLL5819
6653	4822 130 11666	BZX284-C8V2
6653	9322 129 39685	BZM55-C8V2
6654	4822 130 11397	BAS316
6660	9322 128 65685	RS1G
6661	9322 128 65685	RS1G
6663	4822 130 11397	BAS316
6665	9339 680 20115	PRLL5819
6700	4822 130 11152	UDZ18B
6703	9339 680 20115	PRLL5819
6706	4822 130 11152	UDZ18B
6709	9339 680 20115	PRLL5819

7001	9322 108 21682	MC34067P
7002▲	9322 149 04682	TCET1102
7003▲	9322 149 04682	TCET1102
7005	9322 164 01687	STU16NB50I
7005	9322 192 18687	STP15NK50ZFP
7006	9322 164 01687	STU16NB50I
7006	9322 192 18687	STP15NK50ZFP
7007	4822 130 40854	BC327
7008	4822 130 40854	BC327
7009	3198 010 42310	BC847BW
7009	9340 217 70115	BC847BW
7010	4822 209 81397	TL431CLPST
7011	4822 209 81397	TL431CLPST
7017	3198 010 42320	BC857BW
7017	5322 130 42756	BC857C
7017	9340 218 50115	BC857BW
7018	3198 010 42310	BC847BW
7018	9340 217 70115	BC847BW
7020	9335 671 30126	BC517
7021	9335 671 30126	BC517
7022	3198 010 42310	BC847BW
7022	9340 217 70115	BC847BW
7042	4822 130 41646	BF423
7050	9340 557 17118	PSMN035-150B
7052	9322 165 02668	IRFR18N15D
7058	3198 010 42310	BC847BW
7058	9340 217 70115	BC847BW
7059	4822 130 41646	BF423
7059	4822 130 41782	BF422
7090	3198 010 42320	BC857BW
7090	5322 130 42756	BC857C
7090	9340 218 50115	BC857BW
7091	3198 010 42320	BC857BW
7091	5322 130 42756	BC857C
7091	9340 218 50115	BC857BW
7092	4822 130 41246	BC327-25
7093	4822 209 80591	LM317T
7110	4822 130 41646	BF423
7111	4822 130 41646	BF423
7112	9352 673 56112	TEA1507P/N1
7117	9340 557 17118	PSMN035-150B
7120	9322 149 04682	TCET1102
7121	4822 209 81397	TL431CLPST
7130	4822 209 81397	TL431CLPST
7134	3198 010 42310	BC847BW
7134	9340 217 70115	BC847BW
7135	3198 010 42310	BC847BW
7140	9340 425 10115	BC857BS
7142	4822 130 41646	BF423
7200	4822 130 63316	BSN304
7202	5322 130 63289	BSN20
7202	9965 000 04199	BSN20
7212	9352 673 56112	TEA1507P/N1
7217	9340 557 18127	PSMN070-200P
7220	9322 149 04682	TCET1102
7227	4822 209 81397	TL431CLPST
7230	4822 209 12334	L4940V85
7260	9322 166 31682	IC L4973V3.3
7304	4822 209 81397	TL431CLPST
7308	4822 209 60177	LM339D
7326	3198 010 42310	BC847BW
7326	9340 217 70115	BC847BW
7327	3198 010 42310	BC847BW
7327	9340 217 70115	BC847BW
7330	4822 209 60177	LM339D
7341	3198 010 42320	BC857BW
7341	5322 130 42756	BC857C
7341	9340 218 50115	BC857BW
7348	3198 010 42310	BC847BW
7348	9340 217 70115	BC847BW
7351	3198 010 42310	BC847BW
7351	9340 217 70115	BC847BW
7352	3198 010 42310	BC847BW
7352	9340 217 70115	BC847BW
7362	3198 010 42310	BC847BW
7362	9340 217 70115	BC847BW
7366	4822 209 63709	LM324D
7370	5322 209 33172	PCF8574AT
7371	4822 130 40959	BC547B
7375	3198 010 42310	BC847BW
7375	9340 217 70115	BC847BW
7376	3198 010 42310	BC847BW
7376	9340 217 70115	BC847BW
7389	3198 010 42320	BC857BW
7389	5322 130 42756	BC857C
7389	9340 218 50115	BC857BW
7391	3198 010 42320	BC857BW
7391	5322 130 42756	BC857C
7391	9340 218 50115	BC857BW
7393	3198 010 42310	BC847BW
7393	9340 217 70115	BC847BW
7460	4822 130 42804	BC817-25
7460	9340 219 30115	BC817-25W
7465	3198 010 42320	BC857BW
7465	5322 130 42756	BC857C
7465	9340 218 50115	BC857BW
7470	4822 130 42804	BC817-25
7470	9340 219 30115	BC817-25W
7500	9322 037 99682	TNY256P
7501▲	9322 149 04682	TCET1102
7502	4822 209 14933	TL431IZ
7502	4822 209 81397	TL431CLPST
7530	9322 157 95668	STD16NE06L
7531	9322 157 95668	STD16NE06L
7540	4822 209 80817	L7805CV
7608	5322 130 44593	BC369
7610	9322 130 47687	STY34NB50
7640	4822 130 63316	BSN304
7641	4822 130 40981	BC337-25
7650	9322 130 69682	IC MC33368P
7654	3198 010 42320	BC857BW
7654	5322 130 42756	BC857C
7654	9340 218 50115	BC857BW
7660	5322 209 71759	MCT7815CT
7700	9322 115 29668	SI9433DY
7701	3198 010 42310	BC847BW
7701	9340 217 70115	BC847BW
7706	9322 115 29668	SI9433DY
7707	3198 010 42310	BC847BW
7707	9340 217 70115	BC847BW

Power Supply Panel FM33 AA [P]

Various

0008	4822 265 11253	Fuse holder 2p
0010	3122 421 60171	Spring
0011	3122 421 60171	Spring
0015	4822 695 00005	Insulating plate
0016	3122 121 67211	Clip max247
0017	3122 121 67201	Clip large
0020	3122 121 67191	Clip small
0021	3122 121 67191	Clip small
0022	3122 121 67191	Clip small
0023	3122 121 67191	Clip small
0024	3122 121 67191	Clip small
0025	3122 121 67191	Clip small
0206	3104 308 78231	Transistor cooling clip
0302	2422 025 10769	Connector 9P
0305	2422 025 10772	Connector 12P m
0306	2422 025 08149	Connector 6p m
0307	2422 025 17759	Connector 20P f
0308	4822 265 20723	Connector 2p m
0319	2422 025 10668	Connector 13P m
0323	2422 025 15085	Connector 10P m
0333	2422 025 12827	Connector 9P m 3.96
0342	4822 267 10618	Connector 7P
0352	4822 267 10618	Connector 7P
1082▲	2422 086 10849	Fuse F1A 250V
1083▲	2422 086 10849	Fuse F1A 250V
1084▲	2422 086 10849	Fuse F1A 250V
1110▲	4822 071 55002	Fuse T5A 250V
1200▲	9965 000 07788	Fuse T2A 250V
1260▲	2122 662 00107	Fuse RR60-075 A
1400▲	4822 253 30467	Fuse 6.3A
1401▲	9965 000 07788	Fuse T2A 250V
1402	4822 252 60151	Sparkgap dsp501
1450▲	4822 280 10382	SDT-SS-109DM
1460▲	4822 280 10382	SDT-SS-109DM

⊣⊢

2000	2020 554 90169	470pF 20% 250V
2002	3198 030 72290	22µF 20% 35V
2003	4822 124 12056	1000µF 20% 35V
2004	2020 552 96513	100pF 1% 50% 0603
2005	2020 552 96513	100pF 1% 50% 0603
2006	3198 016 31020	1nF 10% 25V 0603
2007	2238 586 59812	100nF 20-80% 50V 0603
2008	5322 126 11583	10nF 10% 50V 0603
2009	3198 030 82280	2.2µF 20% 50V
2010	5322 126 11583	10nF 10% 50V 0603
2011	2222 375 24153	15nF 5% 1kV
2012	4822 126 11254	330pF 10% 2kV
2013	4822 126 11254	330pF 10% 2kV
2014	4822 126 13862	1.5nF 10% 2kV
2015	5322 126 11583	10nF 10% 50V 0603
2016	3198 030 82280	2.2µF 20% 50V
2017	2222 375 24153	15nF 5% 1kV
2018	2020 552 96513	100pF 1% 50% 0603
2020	2020 024 90737	3300µF 20% 100V
2021	2020 024 90737	3300µF 20% 100V
2022	4822 124 12056	1000µF 20% 35V
2023	2238 586 59812	100nF 20-80% 50V 0603
2024	5322 126 11579	3.3nF 10% 63V
2025	2222 601 55649	100nF 10% 100V 1206
2026	4822 126 14238	2.2nF 50V 0603
2027	3198 017 31530	15nF 20% 50V 0603
2028	2238 930 11541	220pF 5% 200V
2029	4822 126 13883	220pF 5% 50V
2030	2238 586 59812	100nF 20-80% 50V 0603
2031	2222 601 55649	100nF 10% 100V 1206
2032	2238 916 15641	22nF 10% 25V 0603
2033	2238 586 59812	100nF 20-80% 50V 0603
2034	4822 126 11979	27pF 5% 2KV
2035	2238 586 15623	1nF 10% 50V 0603
2036	2238 916 15641	22nF 10% 25V 0603
2038	3198 016 31020	1nF 10% 25V 0603
2040	2238 586 59812	100nF 20-80% 50V 0603
2044	2238 930 11541	220pF 5% 200V
2045	4822 126 13883	220pF 5% 50V
2047	3198 030 72290	22µF 20% 35V
2050	2238 586 59812	100nF 20-80% 50V 0603
2054	2238 606 11536	100pF 5% 100V
2055	2238 606 11547	680pF 5% 680V
2058	4822 124 40756	1µF20% 100V
2059	2238 586 59812	100nF 20-80% 50V 0603
2061	2238 586 59812	100nF 20-80% 50V 0603
2090	2020 021 91729	4.7µF 20% 35V
2111	4822 126 13883	220pF 5% 50V
2112	3198 016 31020	1nF 10% 25V 0603
2113	4822 124 12379	220µF 25V
2114	4822 126 13473	220nF 80-20% 50V
2117	2222 780 15656	330nF 10% 16V
2118	4822 126 13449	1nF 10% 2KV
2121	2020 024 90736	2200µF 20% 100V
2122	4822 121 51319	1µF 10% 63V
2123	5322 126 11579	3.3nF 10% 63V
2126	2238 586 59812	100nF 20-80% 50V 0603
2133	3198 030 72290	22µF 20% 35V
2138	4822 126 14472	1µF 10% 10V 0805
2203	2238 586 59812	100nF 20-80% 50V 0603
2205	3198 030 82280	2.2µF 20% 50V
2210	4822 124 80151	47µF 20% 16V
2211	4822 126 13883	220pF 5% 50V
2212	4822 126 13879	220nF 20% 16V
2217	2222 780 15656	330nF 10% 16V
2218	2222 375 90141	3.3nF 1.6kV 5%
2222	2020 552 94427	100pF 5% 50v 0603
2223	2020 552 94427	100pF 5% 50v 0603
2225	2020 021 91551	2200µF 20% 25V
2226	2238 586 59812	100nF 20-80% 50V 0603
2227	2020 552 94427	100pF 5% 50v 0603
2228	2022 552 05617	10µF 5% 6.3V 1206
2229	4822 124 80151	47µF 20% 16V
2230	4822 124 80151	47µF 20% 16V
2231	4822 124 80151	47µF 20% 16V
2232	2020 552 94427	100pF 5% 50v 0603
2260	2238 586 59812	100nF 20-80% 50V 0603
2261	5322 126 11578	1nF 10% 50V 0603
2262	2238 586 59812	100nF 20-80% 50V 0603
2263	5322 126 11578	1nF 10% 50V 0603
2264	2238 586 59812	100nF 20-80% 50V 0603
2265	2022 552 05618	4.7µF 10% 10V 1206
2266	4822 126 14247	1.5nF 50V 0603
2267	4822 126 13879	220nF 20% 16V

2268	2022 552 05616	4.7µF 5% 6.3V
2269	2022 552 05616	4.7µF 5% 6.3V
2270	4822 126 13193	4.7nF 10% 63V
2271	3198 017 31530	15nF 20% 50V 0603
2272	2238 586 59812	100nF 20-80% 50V 0603
2273	2238 586 59812	100nF 20-80% 50V 0603
2290	5322 126 11583	10nF 10% 50V 0603
2291	4822 126 13883	220pF 5% 50V
2292	3198 026 51020	1000µF 50V 20%
2293	4822 126 13883	220pF 5% 50V
2294	3198 026 51020	1000µF 50V 20%
2303	2020 552 96683	220nF 10% 50V
2304	3198 016 31020	1nF 10% 25V 0603
2305	2238 586 59812	100nF 20-80% 50V 0603
2306	2238 586 59812	100nF 20-80% 50V 0603
2316	2238 586 59812	100nF 20-80% 50V 0603
2322	2238 586 59812	100nF 20-80% 50V 0603
2324	2238 586 59812	100nF 20-80% 50V 0603
2343	3198 030 82280	2.2µF 20% 50V
2350	4822 124 12095	100µF 20% 16V
2352	2238 586 59812	100nF 20-80% 50V 0603
2364	2238 586 59812	100nF 20-80% 50V 0603
2366	4822 126 14585	100nF 10% 50V
2369	4822 126 14585	100nF 10% 50V
2370	2238 586 59812	100nF 20-80% 50V 0603
2371	2238 586 59812	100nF 20-80% 50V 0603
2372	2238 586 59812	100nF 20-80% 50V 0603
2373	2238 586 59812	100nF 20-80% 50V 0603
2374	2238 586 59812	100nF 20-80% 50V 0603
2375	2238 586 59812	100nF 20-80% 50V 0603
2376	2238 586 59812	100nF 20-80% 50V 0603
2380	2238 586 59812	100nF 20-80% 50V 0603
2381	2238 586 59812	100nF 20-80% 50V 0603
2385	3198 017 41050	1µF 10V 0603
2393	2238 586 59812	100nF 20-80% 50V 0603
2396	2020 552 96683	220nF 10% 50V
2400	2222 338 22474	470nF 20% 275V
2401	2222 338 22474	470nF 20% 275V
2404	4822 126 14525	47pF 5% 1kV
2405	2020 554 90169	470pF 20% 250V
2406	4822 126 14525	47pF 5% 1kV
2407	2020 554 90169	470pF 20% 250V
2410	2222 338 22474	470nF 20% 275V
2412	2020 554 90169	470pF 20% 250V
2465	4822 124 12095	100µF 20% 16V
2503	2020 024 90708	47µF 400V 20%
2504	5322 126 11578	1nF 10% 50V 0603
2505	4822 124 12056	1000µF 20% 35V
2507	2020 552 94427	100pF 5% 50v 0603
2508	4822 124 12095	100µF 20% 16V
2509	2020 552 94427	100pF 5% 50v 0603
2510	2020 021 91506	1000µF 20% 16V
2511	2238 586 59812	100nF 20-80% 50V 0603
2512	2238 586 59812	100nF 20-80% 50V 0603
2513	2238 586 59812	100nF 20-80% 50V 0603
2530	2022 552 05636	10µF 10% 16V 1210
2532	4822 124 12095	100µF 20% 16V
2533	4822 124 12095	100µF 20% 16V
2540	4822 124 12095	100µF 20% 16V
2541	4822 124 12095	100µF 20% 16V
2600	4822 122 33799	1nF 10% 1kV
2601	4822 122 33799	1nF 10% 1kV
2605	2222 479 90086	1µF 400V 5%
2608	3198 016 31020	1nF 10% 25V 0603
2610	4822 121 70584	1,8nF 5% 2KV
2611	2222 375 90276	220pF 5% 2kV
2612	5322 126 11578	1nF 10% 50V 0603
2613	5322 126 11578	1nF 10% 50V 0603
2616	4822 124 12415	220µF 20% 400V
2617	4822 124 12415	220µF 20% 400V
2640	4822 126 13881	470pF 5% 50V
2642	3198 016 31020	1nF 10% 25V 0603
2651	5322 126 11583	10nF 10% 50V 0603
2653	4822 126 14241	330pF 50V 0603
2654	4822 124 80151	47µF 20% 16V
2655	4822 126 14472	1µF 10% 10V 0805
2656	2238 586 59812	100nF 20-80% 50V 0603
2660	4822 126 13881	470pF 5% 50V
2661	3198 016 31020	1nF 10% 25V 0603
2662	4822 124 80061	1000µF 20% 25V
2663	4822 124 40255	100µF 20% 63V
2664	4822 124 40255	100µF 20% 63V
2665	4822 126 13881	470pF 5% 50V
2666	4822 126 13193	4.7nF 10% 63V
2670	2238 586 59812	100nF 20-80% 50V 0603
2671	2238 586 59812	100nF 20-80% 50V 0603
2672	2238 586 59812	100nF 20-80% 50V 0603
2673	2022 554 04102	4.7nF 10% 500V 1210
2674	2022 554 04103	10nF 10% 500V 1210
2675	2022 554 04103	10nF 10% 500V 1210

–WW–

3003	4822 117 13632	100kΩ 1% 0603 0.62W
3004	4822 051 30153	15kΩ 5% 0.062W
3005	4822 051 30333	33kΩ 5% 0.062W
3006	4822 051 30103	10kΩ 5% 0.062W
3007	4822 051 30472	4.7kΩ 5% 0.062W
3008	4822 051 30102	1kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3010	4822 051 30153	15kΩ 5% 0.062W
3011	4822 051 30561	560Ω 5% 0.062W
3012	4822 051 30472	4.7kΩ 5% 0.062W
3013	4822 051 30103	10kΩ 5% 0.062W
3014	4822 116 52191	33Ω 5% 0.5W
3015	4822 116 52176	10Ω 5% 0.5W
3016	4822 051 30102	1kΩ 5% 0.062W
3017	4822 116 52191	33Ω 5% 0.5W
3018	4822 116 52176	10Ω 5% 0.5W
3019	4822 051 30102	1kΩ 5% 0.062W
3020	4822 051 30563	56kΩ 5% 0.062W
3021	4822 053 11688	6.8Ω 5% 2W
3022	4822 051 30331	330Ω 5% 0.062W
3023	4822 117 12925	47kΩ 1% 0.063W 0603
3024	2322 734 67503	75kΩ 1% 0.062W 0805
3025	5322 117 13046	1.8kΩ 1% 0.063W 0603
3027	4822 117 12925	47kΩ 1% 0.063W 0603
3028	4822 117 10362	7.5kΩ 1% 0,1W
3029	4822 051 30102	1kΩ 5% 0.062W
3030	4822 051 30183	18kΩ 5% 0.062W
3031	2322 704 61103	11kΩ 1% 0603
3032	2322 704 61103	11kΩ 1% 0603
3033	4822 051 30222	2.2kΩ 5% 0.062W
3034	4822 051 30221	220Ω 5% 0.062W
3037	4822 051 30103	10kΩ 5% 0.062W
3038	4822 117 13632	100kΩ 1% 0603 0.62W
3039	4822 051 30105	1MΩ 5% 0.062W
3040	4822 117 10837	100kΩ 1% 0.1W
3041	4822 051 30333	33kΩ 5% 0.062W
3042	4822 051 30471	470Ω 5% 0.062W
3043	4822 051 30472	4.7kΩ 5% 0.062W
3044	4822 051 30102	1kΩ 5% 0.062W
3045	4822 051 30102	1kΩ 5% 0.062W
3046	4822 053 20565	5.6MΩ 5% 0.25W
3047	4822 051 30154	150kΩ 5% 0.062W
3048	4822 051 30472	4.7kΩ 5% 0.062W
3049	4822 051 30123	12kΩ 5% 0.062W
3050	4822 052 10398	3.9Ω 5% 0,33W
3051	4822 051 20399	39Ω 5% 0.1W
3053	2322 662 93131	10Ω PTC
3054	4822 117 10833	10kΩ 1% 0.1W
3056	4822 051 30331	330Ω 5% 0.062W
3057	4822 051 30101	100Ω 5% 0.062W
3058	4822 051 20105	1MΩ 5% 0.1W
3062	4822 051 30102	1kΩ 5% 0.062W
3064	4822 051 30103	10kΩ 5% 0.062W
3065	4822 051 30102	1kΩ 5% 0.062W
3066	4822 051 30103	10kΩ 5% 0.062W
3067	4822 051 30153	15kΩ 5% 0.062W
3070	4822 051 30103	10kΩ 5% 0.062W
3071	4822 117 12925	47kΩ 1% 0.063W 0603
3075	4822 051 20105	1MΩ 5% 0.1W
3076	4822 117 13632	100kΩ 1% 0603 0.62W
3077	4822 051 20105	1MΩ 5% 0.1W
3078	4822 117 13632	100kΩ 1% 0603 0.62W
3080	4822 051 30101	100Ω 5% 0.062W
3081	4822 051 30222	2.2kΩ 5% 0.062W
3083	4822 051 10102	1kΩ 2% 0.25W
3084	4822 051 30103	10kΩ 5% 0.062W
3085	4822 117 12925	47kΩ 1% 0.063W 0603
3086	4822 117 12925	47kΩ 1% 0.063W 0603
3087	4822 117 12925	47kΩ 1% 0.063W 0603
3088	4822 117 12925	47kΩ 1% 0.063W 0603
3090	4822 051 30101	100Ω 5% 0.062W
3091	4822 051 30102	1kΩ 5% 0.062W
3092	4822 051 30471	470Ω 5% 0.062W
3093	4822 051 30102	1kΩ 5% 0.062W
3095	4822 051 30471	470Ω 5% 0.062W
3096	4822 051 30562	5.6kΩ 5% 0.063W 0603
3097	4822 117 12968	820Ω 5% 0.62W
3106	4822 117 12955	2.7kΩ 1% 0.1W 0805
3107	4822 117 12955	2.7kΩ 1% 0.1W 0805
3108	4822 117 12955	2.7kΩ 1% 0.1W 0805
3109	4822 117 12955	2.7kΩ 1% 0.1W 0805
3110	4822 051 30102	1kΩ 5% 0.062W
3112	4822 051 30102	1kΩ 5% 0.062W
3113	4822 051 30474	470kΩ 5% 0.062W
3114	4822 051 20564	560kΩ 5% 0.1W
3115	4822 117 12891	220kΩ 1% 0.063W 0603
3116	4822 051 30102	1kΩ 5% 0.062W
3117	4822 051 30103	10kΩ 5% 0.062W
3118	2122 118 06084	0.051Ω 5% 1W 2512
3120	4822 117 12903	1.8kΩ 1% 0.063W 0603

3121	4822 117 12925	47kΩ 1% 0.063W 0603
3122	2322 734 67503	75kΩ 1% 0.062W 0805
3123	4822 117 10965	18kΩ 1% 0.1W
3124	2322 704 67502	7.5K 1% 0,5W
3125	2322 704 67502	7.5K 1% 0,5W
3126	5322 117 13037	2.2kΩ 0.063W 0603
3128	4822 051 30333	33kΩ 5% 0.062W
3130	4822 051 30102	1kΩ 5% 0.062W
3131	2322 704 61103	11kΩ 1% 0603
3132	4822 051 30221	220Ω 5% 0.062W
3133	4822 051 30101	100Ω 5% 0.062W
3134	4822 051 30331	330Ω 5% 0.062W
3135	4822 117 12925	47kΩ 1% 0.063W 0603
3136	4822 117 12925	47kΩ 1% 0.063W 0603
3138	4822 117 11503	220Ω 1% 0.1W
3139	4822 117 11503	220Ω 1% 0.1W
3140	2322 734 67503	75kΩ 1% 0.062W 0805
3141	2322 734 67503	75kΩ 1% 0.062W 0805
3142	5322 117 12487	1kΩ 1% 0.125W
3143	4822 053 11472	4kΩ 5% 2W
3145	2322 763 65107	0.51Ω 1% 1W 2512
3146	2322 763 65107	0.51Ω 1% 1W 2512
3147	2322 704 61103	11kΩ 1% 0603
3200	2322 730 61224	220kΩ 5% 0.062W 0805
3202	4822 051 30479	47Ω 5% 0.062W
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 117 13632	100kΩ 1% 0603 0.62W
3205	4822 117 13632	100kΩ 1% 0603 0.62W
3206	4822 117 12955	2.7kΩ 1% 0.1W 0805
3207	4822 117 12955	2.7kΩ 1% 0.1W 0805
3208	4822 117 12955	2.7kΩ 1% 0.1W 0805
3209	4822 117 12955	2.7kΩ 1% 0.1W 0805
3212	4822 051 30102	1kΩ 5% 0.062W
3213	4822 051 20394	390kΩ 5% 0.1W
3214	4822 117 13632	100kΩ 1% 0603 0.62W
3216	4822 051 30102	1kΩ 5% 0.062W
3217	4822 051 30103	10kΩ 5% 0.062W
3218	2122 118 06084	0.051Ω 5% 1W 2512
3224	5322 117 13028	12kΩ 1% 0.063W 0603
3225	2322 704 61103	11kΩ 1% 0603
3226	4822 051 30103	10kΩ 5% 0.062W
3228	4822 051 30151	150Ω 5% 0.062W
3260	4822 051 30109	10Ω 5% 0.062W
3261	4822 051 30681	680Ω 5% 0.062W
3263	4822 117 12925	47kΩ 1% 0.063W 0603
3264	4822 117 12925	47kΩ 1% 0.063W 0603
3266	4822 051 30272	2.7kΩ 5% 0.062W
3267	5322 117 13062	390Ω 1% 0.063W 0603
3268	4822 051 30103	10kΩ 5% 0.062W
3270	4822 051 30681	680Ω 5% 0.062W
3271	4822 051 30102	1kΩ 5% 0.062W
3272	5322 117 13018	1kΩ 1% 0.063W 0603
3292	4822 051 30561	560Ω 5% 0.062W
3300	4822 117 13579	220kΩ 1% 0.1W 0805
3301	4822 117 13579	220kΩ 1% 0.1W 0805
3302	2312 916 71004	100kΩ 1%
3303	2312 916 71004	100kΩ 1%
3304	4822 051 30102	1kΩ 5% 0.062W
3305	2312 916 76202	6.2kΩ 1%
3306	2322 704 61103	11kΩ 1% 0603
3307	5322 117 13028	12kΩ 1% 0.063W 0603
3308	4822 051 30102	1kΩ 5% 0.062W
3310	4822 051 30472	4.7kΩ 5% 0.062W
3311	4822 117 13579	220kΩ 1% 0.1W 0805
3312	4822 051 30102	1kΩ 5% 0.062W
3313	2322 704 67502	7.5K 1% 0,5W
3316	2312 916 77502	7.5kΩ 1%
3317	2322 704 67502	7.5K 1% 0,5W
3319	4822 051 30472	4.7kΩ 5% 0.062W
3320	2322 704 61103	11kΩ 1% 0603
3321	4822 051 30102	1kΩ 5% 0.062W
3322	5322 117 13042	3.9kΩ 1% 0.063W 0603
3323	4822 117 10833	10kΩ 1% 0.1W
3324	4822 051 30102	1kΩ 5% 0.062W
3325	4822 051 30471	470Ω 5% 0.062W
3326	4822 051 30472	4.7kΩ 5% 0.062W
3327	4822 051 30103	10kΩ 5% 0.062W
3328	4822 051 30103	10kΩ 5% 0.062W
3331	4822 051 30472	4.7kΩ 5% 0.062W
3332	4822 117 11144	3.9kΩ 1% 0.1W
3333	4822 051 30102	1kΩ 5% 0.062W
3334	4822 117 12955	2.7kΩ 1% 0.1W 0805
3335	4822 116 83933	15kΩ 1% 0.1W
3339	4822 051 30472	4.7kΩ 5% 0.062W
3340	4822 051 30102	1kΩ 5% 0.062W
3341	4822 051 30103	10kΩ 5% 0.062W
3342	4822 051 30103	10kΩ 5% 0.062W
3343	4822 051 30102	1kΩ 5% 0.062W
3344	4822 051 30102	1kΩ 5% 0.062W
3345	4822 051 30472	4.7kΩ 5% 0.062W
3347	4822 051 30331	330Ω 5% 0.062W
3348	4822 051 30331	330Ω 5% 0.062W
3349	4822 051 30102	1kΩ 5% 0.062W
3350	4822 051 30472	4.7kΩ 5% 0.062W

3351	4822 051 30103	10kΩ 5% 0.062W
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 051 30103	10kΩ 5% 0.062W
3354	4822 051 30472	4.7kΩ 5% 0.062W
3358	4822 051 30222	2.2kΩ 5% 0.062W
3359	4822 051 30472	4.7kΩ 5% 0.062W
3360	4822 117 11817	1.2kΩ 1% 1/16W
3361	4822 051 30472	4.7kΩ 5% 0.062W
3363	4822 051 30102	1kΩ 5% 0.062W
3364	4822 051 30102	1kΩ 5% 0.062W
3368	4822 051 30101	100Ω 5% 0.062W
3369	4822 051 30101	100Ω 5% 0.062W
3370	4822 051 30101	100Ω 5% 0.062W
3371	4822 051 30101	100Ω 5% 0.062W
3372	9337 224 50116	Temp sens. KTY81-210
3373	4822 051 30472	4.7kΩ 5% 0.062W
3374	4822 117 12925	47kΩ 1% 0.063W 0603
3376	4822 117 12925	47kΩ 1% 0.063W 0603
3377	4822 051 30472	4.7kΩ 5% 0.062W
3378	4822 051 30103	10kΩ 5% 0.062W
3380	4822 117 12925	47kΩ 1% 0.063W 0603
3381	4822 117 12925	47kΩ 1% 0.063W 0603
3382	5322 117 13039	222kΩ 1% 0.063W 0603
3385	4822 117 13632	100kΩ 1% 0603 0.62W
3386	4822 117 13632	100kΩ 1% 0603 0.62W
3387	4822 051 30471	470Ω 5% 0.062W
3388	4822 051 30102	1kΩ 5% 0.062W
3389	4822 051 30102	1kΩ 5% 0.062W
3390	4822 051 30103	10kΩ 5% 0.062W
3391	4822 051 30103	10kΩ 5% 0.062W
3392	4822 051 30102	1kΩ 5% 0.062W
3393	4822 051 30103	10kΩ 5% 0.062W
3394	4822 051 30102	1kΩ 5% 0.062W
3395	4822 051 30103	10kΩ 5% 0.062W
3396	2312 916 71004	100kΩ 1%
3397	2312 916 71004	100kΩ 1%
3400▲	2322 595 90021	VDR 1mA/495V 850V
3401	4822 117 10118	1MΩ 5% 0,5W
3404	4822 116 83872	220Ω 5% 0.5W
3450	2322 662 93131	10Ω PTC
3451	2322 662 93131	10Ω PTC
3452	2122 612 00051	NTC 1Ω 20%
3453	2122 612 00051	NTC 1Ω 20%
3460	4822 051 30472	4.7kΩ 5% 0.062W
3461	4822 051 30103	10kΩ 5% 0.062W
3463	4822 051 30103	10kΩ 5% 0.062W
3465	4822 051 30103	10kΩ 5% 0.062W
3467	4822 051 30103	10kΩ 5% 0.062W
3469	4822 051 30472	4.7kΩ 5% 0.062W
3470	4822 051 30103	10kΩ 5% 0.062W
3501	4822 051 30101	100Ω 5% 0.062W
3502	4822 051 30471	470Ω 5% 0.062W
3503	5322 117 13026	4.7kΩ 1% 0.063W 0603
3504	5322 117 13024	33kΩ 1% 0.063W 0603
3505	4822 117 11139	1.5kΩ 1% 0.1W
3506	2322 662 93131	10Ω PTC
3508	2322 194 63109	10Ω 5% 2W
3510	4822 051 20684	680kΩ 5% 0.1W
3511	4822 051 20684	680kΩ 5% 0.1W
3512	4822 051 20684	680kΩ 5% 0.1W
3520	4822 051 30109	10Ω 5% 0.062W
3530	4822 117 13632	100kΩ 1% 0603 0.62W
3603	4822 051 20474	470kΩ 5% 0.1W
3604	4822 051 20474	470kΩ 5% 0.1W
3605	4822 051 20474	470kΩ 5% 0.1W
3608	4822 116 52179	12Ω 5% 0,5W
3610	5322 116 53564	3.3Ω 5% 0.5W
3611	4822 050 11002	1kΩ 1% 0.4W
3614	2120 106 90565	0.1Ω 5% 1W
3615	2120 106 90565	0.1Ω 5% 1W
3639	4822 051 30102	1kΩ 5% 0.062W
3640	4822 051 30331	330Ω 5% 0.062W
3641	4822 051 30471	470Ω 5% 0.062W
3642	4822 051 30101	100Ω 5% 0.062W
3651	4822 051 30103	10kΩ 5% 0.062W
3652	4822 051 30105	1MΩ 5% 0.062W
3654	4822 051 30103	10kΩ 5% 0.062W
3655	4822 051 30102	1kΩ 5% 0.062W
3660	4822 051 20391	390Ω 5% 0.1W
3661	4822 051 20391	390Ω 5% 0.1W
3663	4822 052 10108	1Ω 5% 0.33W
3664	2322 704 62404	240kΩ 1% 0603
3665	4822 051 30103	10kΩ 5% 0.062W
3666	4822 051 30101	100Ω 5% 0.062W
3667	4822 051 30103	10kΩ 5% 0.062W
3668	4822 052 11102	1kΩ 5% 0,5W
3671	2322 704 61103	11kΩ 1% 0603
3673	4822 052 11102	1kΩ 5% 0,5W
3675	4822 117 12917	1Ω 5% 0.062W 0603
3676	5322 117 13026	4.7kΩ 1% 0.063W 0603
3677	5322 117 13029	47kΩ 1% 0.063W 0603
3678	4822 117 12925	47kΩ 1% 0.063W 0603
3680	2322 734 62704	270kΩ 1% 0.1W 0805
3681	2322 734 62704	270kΩ 1% 0.1W 0805
3682	2322 734 62704	270kΩ 1% 0.1W 0805
3683	4822 051 20334	330kΩ 5% 0,1W
3684	4822 051 20334	330kΩ 5% 0,1W
3685	4822 051 20334	330kΩ 5% 0,1W
3999	4822 051 30102	1kΩ 5% 0.062W
4300	4822 051 30008	Jumper 0603

5001	2422 531 02444	Transformer S13932-04Y
5002▲	3104 308 20811	Trans. BS42236-00B
5004▲	3104 308 20811	Trans. BS42236-00B
5121	3104 308 20771	BD21232-00
5220▲	3104 308 20911	Trans. BS29238-00
5225	2422 535 95273	6.8µH 20%
5229	4822 157 71461	22µH 10%
5267▲	2422 535 94603	22µH 10%
5290▲	3104 308 20761	Trans. BD 15230-00B
5291	4822 157 11737	22µH 10%
5292	4822 157 11737	22µH 10%
5293	4822 157 11737	22µH 10%
5294	4822 157 11499	BLM11P600SPT
5401▲	3104 308 20921	Filter DMF2807 B
5402▲	3104 308 20921	Filter DMF2807 B
5404▲	3104 308 20921	Filter DMF2807 B
5500▲	3104 308 20781	Transformer CE165T
5505	4822 157 11737	22µH 10%
5600▲	3104 308 20821	Coil BS42228-00 B
5612	4822 157 11411	Bead 83Ω at 100MHz
5660	4822 157 51192	220MH

6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6007	4822 130 11397	BAS316
6008	4822 130 11397	BAS316
6009	4822 130 11397	BAS316
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6018	4822 130 11397	BAS316
6019	4822 130 11397	BAS316
6021	9322 128 70685	SMSS14
6022	4822 130 11397	BAS316
6023	4822 130 11397	BAS316
6027	4822 130 11397	BAS316
6028	4822 130 11397	BAS316
6031	3198 020 55680	BZX384-C5V6
6032	3198 020 55680	BZX384-C5V6
6033	9322 150 18685	BZX384-C47
6034	4822 130 11397	BAS316
6035	4822 130 11397	BAS316
6042	9322 150 18685	BZX384-C47
6044	9322 167 08687	STTH2003CF
6045	9322 128 70685	SMSS14
6047	9322 128 65685	RS1G
6050	4822 130 11152	UDZ18B
6054	9340 553 52115	BAS321
6055	9340 553 52115	BAS321
6061	4822 130 11152	UDZ18B
6075▲	9340 292 80135	BZG03-C270
6077▲	9340 292 80135	BZG03-C270
6086	4822 130 11397	BAS316
6095	4822 130 11397	BAS316
6111	4822 130 11397	BAS316
6112	4822 130 11397	BAS316
6113	4822 130 11397	BAS316
6117	4822 130 11152	UDZ18B
6120	4822 130 11596	BYW29EX-200
6123	4822 130 11397	BAS316
6133	4822 130 11397	BAS316
6202	4822 130 11397	BAS316
6204	3198 020 55680	BZX384-C5V6
6205	4822 130 11152	UDZ18B
6206	4822 130 11397	BAS316
6211	9322 128 65685	RS1G
6213	4822 130 11397	BAS316
6216	4822 130 11152	UDZ18B
6225	9322 173 47687	STPS20L40CFP
6230	9322 128 70685	SMSS14
6261	4822 130 11397	BAS316
6269	9339 680 20115	PRLL5819
6291	4822 130 81274	MBR745
6292	4822 130 81274	MBR745
6312	4822 130 11528	1PS76SB10
6313	4822 130 11528	1PS76SB10
6321	4822 130 11528	1PS76SB10
6322	4822 130 11528	1PS76SB10
6325	4822 130 11416	PDZ6.8B
6333	4822 130 11528	1PS76SB10
6334	4822 130 11528	1PS76SB10
6340	4822 130 11528	1PS76SB10
6341	4822 130 11528	1PS76SB10
6344	4822 130 10838	UDZ3.3B
6347	4822 130 10654	BAT254
6348▲	9322 192 17685	P0102BL
6362	4822 130 11397	BAS316
6364	4822 130 11397	BAS316
6365	4822 130 11397	BAS316
6375	4822 130 11397	BAS316
6376	4822 130 11397	BAS316
6378	4822 130 11528	1PS76SB10
6390	4822 130 11397	BAS316
6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6470	4822 130 11397	BAS316
6471	4822 130 11397	BAS316
6501▲	9340 292 80135	BZG03-C270
6502▲	9340 292 80135	BZG03-C270
6503	9322 128 65685	RS1G
6504	9322 128 65685	RS1G
6505	9322 180 55668	MBRS340
6510	9322 099 61685	BYG10J
6511	9322 099 61685	BYG10J
6512	9322 099 61685	BYG10J
6513	9322 099 61685	BYG10J
6520	4822 130 11397	BAS316
6530	4822 130 11152	UDZ18B
6531	4822 130 11152	UDZ18B
6600	9322 131 67679	GBU8JL-7000
6605	9322 192 15668	SM S3J
6606	9322 192 15668	SM S3J
6608	4822 130 11397	BAS316
6609▲	9340 289 90135	BZG03-C18
6611	3139 120 52021	BYV29X-500
6640	9339 680 20115	PRLL5819
6641	4822 130 11397	BAS316
6642	9339 680 20115	PRLL5819
6643	4822 130 11152	UDZ18B
6652	9339 680 20115	PRLL5819
6653	4822 130 10837	UDZS8.2B
6654	4822 130 11397	BAS316
6660	9322 128 65685	RS1G
6661	9322 128 65685	RS1G
6663	9339 680 20115	PRLL5819
6665	9339 680 20115	PRLL5819

7001	9322 108 21682	MC34067P
7002▲	9322 192 38668	TCLT1002
7003▲	9322 192 38668	TCLT1002
7005	9322 192 18687	STP15NK50ZFP
7006	9322 192 18687	STP15NK50ZFP
7007	4822 130 40854	BC327
7008	4822 130 40854	BC327
7009	3198 010 42310	BC847BW
7010▲	9322 192 16685	TS2431AI
7011▲	9322 192 16685	TS2431AI
7017	3198 010 42320	BC857BW
7018	3198 010 42310	BC847BW
7020	9335 671 30126	BC517
7021	9335 671 30126	BC517
7022	3198 010 42310	BC847BW
7042▲	9340 308 50135	PMST5401
7050	9340 557 17118	PSMN035-150B
7052	9322 165 02668	IRFR18N15D
7058	3198 010 42310	BC847BW
7059▲	9340 308 60135	PMST5550
7090	3198 010 42320	BC857BW
7091	3198 010 42320	BC857BW
7092	3198 010 44350	BC807-25W
7093	4822 209 80591	LM317T
7110▲	9340 308 50135	PMST5401
7112	9352 673 56112	TEA1507P/N1
7117	9340 557 17118	PSMN035-150B
7120▲	9322 192 38668	TCLT1002
7121▲	9322 192 16685	TS2431AI
7130▲	9322 192 16685	TS2431AI
7134	3198 010 42310	BC847BW
7140	9340 425 10115	BC857BS
7142▲	9340 308 50135	PMST5401
7200	9340 565 06215	BSH114
7202	9965 000 04199	BSN20
7212	9352 673 56112	TEA1507P/N1
7217	9340 557 18127	PSMN070-200P
7220▲	9322 192 38668	TCLT1002
7227▲	9322 192 16685	TS2431AI
7230▲	9322 193 05668	L4940D2T85
7260▲	9322 182 77668	L6910
7262	9322 160 70668	SI4936ADY
7263	3198 010 42310	BC847BW
7304▲	9322 192 16685	TS2431AI
7308	4822 209 60177	LM339D
7326	3198 010 42310	BC847BW

7327	3198 010 42310	BC847BW
7330	4822 209 60177	LM339D
7341	3198 010 42320	BC857BW
7348	3198 010 42310	BC847BW
7351	3198 010 42310	BC847BW
7352	3198 010 42310	BC847BW
7362	3198 010 42310	BC847BW
7366	5322 209 82941	LM358D
7370	5322 209 33172	PCF8574AT
7372⚠	9352 697 76118	LM75ADP
7375	3198 010 42310	BC847BW
7376	3198 010 42310	BC847BW
7389	3198 010 42320	BC857BW
7391	3198 010 42320	BC857BW
7393	3198 010 42310	BC847BW
7460	9340 219 30115	BC817-25W
7465	3198 010 42320	BC857BW
7470	9340 219 30115	BC817-25W
7500	9322 037 99682	TNY256P
7501⚠	9322 192 38668	TCLT1002
7502⚠	9322 192 16685	TS2431AI
7530	9322 160 70668	SI4936ADY
7540	9322 156 14668	LD1117D50
7608	5322 130 44593	BC369
7610	9322 130 47687	STY34NB50
7640	9965 000 04199	BSN20
7641	9340 219 30115	BC817-25W
7650	9322 130 69682	IC MC33368P
7654	3198 010 42320	BC857BW
7661	5322 209 90529	MC34063AD

Power Supply Panel FM24 AB [P]

Various

0006	4822 265 11253	Fuse holder 2p
0008	4822 265 11253	Fuse holder 2p
0010	3122 421 60171	Spring
0011	3122 421 60171	Spring
0015	4822 695 00005	Insulating plate
0016	3122 121 67211	Clip max247
0017	3122 121 67201	Clip large
0018	3122 121 67201	Clip large
0020	3122 121 67191	Clip small
0021	3122 121 67191	Clip small
0022	3122 121 67191	Clip small
0023	3122 121 67191	Clip small
0024	3122 121 67191	Clip small
0025	3122 121 67191	Clip small
0027	3122 121 67191	Clip small
0028	4822 701 13088	Transistor clamp
0029	4822 701 13088	Transistor clamp
0040	2413 015 00065	Cable tie BT18R/4B
0041	3122 124 36011	Thermo foam
0205	3104 308 78231	Transistor cooling clip
0206	3104 308 78231	Transistor cooling clip
0302	2422 025 10769	Connector 9P
0305	2422 025 10772	Connector 12P m
0306	2422 025 08149	Connector 6p m
0307	2422 025 17154	Connector 20P f
0307	2422 025 17759	Connector 20P f
0308	4822 265 20723	Connector 2p m
0319	2422 025 10668	Connector 13P m
0323	2422 025 15085	Connector 10P m
0333	2422 025 12827	Connector 9P m 3.96
0342	4822 267 10618	Connector 7P
0352	4822 267 10618	Connector 7P
0389	4822 267 10735	Connector 3p m
0390	4822 267 10735	Connector 3p m
0392	2422 025 09406	Connector 4p
1004⚠	4822 070 33152	Fuse 3.15A
1005⚠	4822 071 55002	Fuse T5A 250V
1041⚠	4822 071 55002	Fuse T5A 250V
1042⚠	4822 071 55002	Fuse T5A 250V
1043⚠	4822 071 55002	Fuse T5A 250V
1044⚠	4822 071 55002	Fuse T5A 250V
1045⚠	4822 071 55002	Fuse T5A 250V
1084⚠	2422 086 10849	Fuse F1A 250V
1110⚠	4822 071 55002	Fuse T5A 250V
1200⚠	9965 000 07788	Fuse T2A 250V
1260⚠	2122 662 00107	Fuse RR60-075 A
1400⚠	4822 253 30467	Fuse 6.3A
1401⚠	9965 000 07788	Fuse T2A 250V
1402⚠	4822 252 60151	Sparkgap dsp501
1450⚠	4822 280 10382	SDT-SS-109DM
1460⚠	4822 280 10382	SDT-SS-109DM

⊣⊢

2000	2020 554 90148	470pF 20% 250V
2001	2222 151 90062	47µF 20% 450V
2002	4822 124 40207	100µF 20% 25V
2003	4822 124 12056	1000µF 20% 35V
2004	2222 464 90017	200pF 2% 630V
2005	4822 121 51288	100pF 630V
2006	3198 016 31020	1nF 10% 25V 0603
2007	2238 586 59812	100nF 20-80% 50V 0603
2008	5322 126 11583	10nF 10% 50V 0603
2009	4822 124 22652	2.2µF 20% 50V
2010	5322 126 11583	10nF 10% 50V 0603
2011	2222 375 24153	15nF 5% 1kV
2012	4822 126 11254	330pF 10% 2kV
2013	4822 126 11254	330pF 10% 2kV
2014	4822 126 13862	1.5nF 10% 2kV
2015	5322 126 11583	10nF 10% 50V 0603
2016	3198 032 64090	2.2µF 20% 25V
2016	4822 124 22652	2.2µF 20% 50V
2017	2222 375 24153	15nF 5% 1kV
2020	2222 156 29332	3300µF 20% 100V 156
2021	2222 156 19332	3300µF20% 100V 156
2022	4822 124 12056	1000µF 20% 35V
2023	2238 586 59812	100nF 20-80% 50V 0603
2024	5322 126 11579	3.3nF 10% 63V
2025	2020 321 90041	180nF 250V 5%
2026	4822 126 14238	2.2nF 50V 0603
2027	3198 017 31530	15nF 20% 50V 0603
2028	2238 930 11541	220pF 5% 200V
2029	4822 126 13883	220pF 5% 50V
2030	2238 586 59812	100nF 20-80% 50V 0603
2032	2238 916 15641	22nF 10% 25V 0603
2032	4822 126 14494	22nF 10% 25V 0603
2033	2238 586 59812	100nF 20-80% 50V 0603
2034	4822 126 11979	27pF 5% 2KV
2035	2238 586 15623	1nF 10% 50V 0603
2036	2238 916 15641	22nF 10% 25V 0603
2036	4822 126 14494	22nF 10% 25V 0603
2038	3198 016 31020	1nF 10% 25V 0603
2040	2238 586 59812	100nF 20-80% 50V 0603
2041	2238 930 11541	220pF 5% 200V
2042	2238 930 11541	220pF 5% 200V
2043	2222 056 59222	2200µF 100V 20%
2044	2238 930 11541	220pF 5% 200V
2045	4822 126 13883	220pF 5% 50V
2046	2238 930 11541	220pF 5% 200V
2047	2238 930 11541	220pF 5% 200V
2048	2238 930 11541	220pF 5% 200V
2049	2238 930 11541	220pF 5% 200V
2050	2238 586 59812	100nF 20-80% 50V 0603
2054	2238 606 11536	100pF 5% 100V
2054	2238 930 11541	220pF 5% 200V
2055	2020 557 90731	1nF 10% 250V 0805
2055	2238 606 11547	680pF 5% 680V
2058	4822 124 40756	1µF20% 100V
2059	2238 586 59812	100nF 20-80% 50V 0603
2061	2238 586 59812	100nF 20-80% 50V 0603
2090	4822 124 40769	4.7µF 20% 100V
2110	5322 126 11583	10nF 10% 50V 0603
2111	4822 126 13883	220pF 5% 50V
2112	3198 016 31020	1nF 10% 25V 0603
2113	4822 124 12379	220µF 25V
2113	4822 124 80875	220µF 20% 25V
2114	4822 126 13473	220nF 80-20% 50V
2117	2222 780 15656	330nF 10% 16V
2118	4822 126 13449	1nF 10% 2KV
2121	2222 056 59222	2200µF 100V 20%
2122	4822 121 51319	1µF 10% 63V
2122	4822 124 40756	1µF20% 100V
2123	5322 126 11579	3.3nF 10% 63V
2126	2238 586 59812	100nF 20-80% 50V 0603
2133	3198 029 32290	22µF 20% 25V
2138	4822 124 12084	1µF 20% 50V
2138	4822 124 21913	1µF 20% 63V
2203	2238 586 59812	100nF 20-80% 50V 0603
2205	3198 032 64090	2.2µF 20% 25V
2210	4822 124 40433	47µF 20% 25V
2211	4822 126 13883	220pF 5% 50V
2212	2238 586 59812	100nF 20-80% 50V 0603
2212	4822 126 13879	220nF 20% 16V
2217	2222 780 15656	330nF 10% 16V
2218	2222 375 90141	3.3nF 1.6kV 5%
2219	2020 021 91543	47µF 20% 160V
2222	2020 552 94427	100pF 5% 50v 0603
2223	2020 552 94427	100pF 5% 50v 0603
2224	2020 021 91551	2200µF 20% 25V
2225	2020 021 91551	2200µF 20% 25V
2226	2238 586 59812	100nF 20-80% 50V 0603
2227	2020 552 94427	100pF 5% 50v 0603
2228	2020 021 91411	1000µF 20% 35V
2229	5322 126 11578	1nF 10% 50V 0603
2230	5322 121 10472	47µF
2231	5322 121 10472	47µF
2232	2020 552 94427	100pF 5% 50v 0603
2260	4822 126 14043	1µF 20% 16V
2261	2020 021 91411	1000µF 20% 35V
2262	4822 126 13473	220nF 80-20% 50V
2263	2222 861 15272	2.7nF 5% 50V 0805
2264	4822 126 13482	470nF 80-20% 16V
2265	4822 126 14241	330pF 50V 0603
2266	2238 916 15641	22nF 10% 25V 0603
2266	4822 126 14494	22nF 10% 25V 0603
2267	5322 126 10223	4.7nF 10% 63V
2268	4822 126 13473	220nF 80-20% 50V
2269	2020 021 91524	220µF 20% 25V
2270	4822 124 40433	47µF 20% 25V
2290	5322 126 11583	10nF 10% 50V 0603
2291	4822 126 13883	220pF 5% 50V
2292	2020 021 91354	1000µF 20% 50V
2293	4822 126 13883	220pF 5% 50V
2294	2020 021 91354	1000µF 20% 50V
2303	4822 121 42408	220nF 10% 50V
2304	3198 016 31020	1nF 10% 25V 0603
2305	2238 586 59812	100nF 20-80% 50V 0603
2306	2238 586 59812	100nF 20-80% 50V 0603
2316	2238 586 59812	100nF 20-80% 50V 0603
2322	2238 586 59812	100nF 20-80% 50V 0603
2324	2238 586 59812	100nF 20-80% 50V 0603
2343	4822 124 22652	2.2µF 20% 50V
2350	4822 124 40207	100µF 20% 25V
2352	2238 586 59812	100nF 20-80% 50V 0603
2364	2238 586 59812	100nF 20-80% 50V 0603
2366	2238 586 59812	100nF 20-80% 50V 0603
2370	2238 586 59812	100nF 20-80% 50V 0603
2376	2238 586 59812	100nF 20-80% 50V 0603
2380	2238 586 59812	100nF 20-80% 50V 0603
2381	2238 586 59812	100nF 20-80% 50V 0603
2385	3198 017 41050	1µF 10V 0603
2393	2238 586 59812	100nF 20-80% 50V 0603
2396	4822 121 42408	220nF 10% 50V
2400	4822 126 13589	470nF 275V
2401	4822 126 13589	470nF 275V
2404	4822 126 14525	47pF 5% 1kV
2405	2020 554 90148	470pF 20% 250V
2406	4822 126 14525	47pF 5% 1kV
2407	2020 554 90148	470pF 20% 250V
2408	2020 554 90148	470pF 20% 250V
2409	2020 554 90148	470pF 20% 250V
2410	4822 126 13589	470nF 275V
2411	2020 554 90148	470pF 20% 250V
2412	2020 554 90148	470pF 20% 250V
2465	4822 124 40207	100µF 20% 25V
2503	2222 151 90062	47µF 20% 450V
2504	5322 126 11578	1nF 10% 50V 0603
2505	2020 021 91354	1000µF 20% 50V
2507	2020 552 94427	100pF 5% 50v 0603
2508	4822 124 12032	4.7µF 20% 50V
2509	2020 552 94427	100pF 5% 50v 0603
2510	4822 124 81145	1000µF 16V 20%
2511	2238 586 59812	100nF 20-80% 50V 0603
2512	2238 586 59812	100nF 20-80% 50V 0603
2513	2238 586 59812	100nF 20-80% 50V 0603
2530	5322 124 40641	10µF 20% 100V
2532	4822 124 40207	100µF 20% 25V
2533	4822 124 40207	100µF 20% 25V
2540	4822 124 40207	100µF 20% 25V
2541	4822 124 40207	100µF 20% 25V
2600	4822 122 33799	1nF 10% 1kV
2601	4822 122 33799	1nF 10% 1kV
2605	2222 479 90086	1µF 400V 5%
2608	3198 016 31020	1nF 10% 25V 0603
2610	4822 121 70584	1,8nF 5% 2KV
2611	2222 375 90276	220pF 5% 2kV
2612	5322 126 11578	1nF 10% 50V 0603
2613	5322 126 11578	1nF 10% 50V 0603
2616	2222 057 36221	220µF 20% 400V 057
2617	2222 057 36221	220µF 20% 400V 057
2640	4822 126 13881	470pF 5% 50V
2642	3198 016 31020	1nF 10% 25V 0603
2651	5322 126 11583	10nF 10% 50V 0603
2653	4822 126 14241	330pF 50V 0603
2654	4822 124 40433	47µF 20% 25V
2655	4822 121 51319	1µF 10% 63V
2656	2238 586 59812	100nF 20-80% 50V 0603
2662	4822 124 80061	1000µF 20% 25V
2663	4822 124 40255	100µF 20% 63V
2664	4822 124 40255	100µF 20% 63V
2665	4822 126 13881	470pF 5% 50V
2666	4822 126 13193	4.7nF 10% 63V
2670	2238 586 59812	100nF 20-80% 50V 0603
2671	2238 586 59812	100nF 20-80% 50V 0603
2672	2238 586 59812	100nF 20-80% 50V 0603
2673	4822 121 43343	4.7nF 10% 400V
2674	4822 121 41664	22nF 10% 400V
2700	4822 124 80791	470µF 20% 16V
2703	4822 124 80791	470µF 20% 16V
2709	4822 124 80791	470µF 20% 16V

–WW–		
3003	4822 051 30124	120kΩ 5% 0.062W
3003	4822 117 12864	82kΩ 5% 0.6W
3004	4822 051 30153	15kΩ 5% 0.062W
3005	4822 051 30333	33kΩ 5% 0.062W
3006	4822 051 30103	10kΩ 5% 0.062W
3007	4822 051 30472	4.7kΩ 5% 0.062W
3008	4822 051 30102	1kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3010	4822 051 30153	15kΩ 5% 0.062W
3011	4822 051 30561	560Ω 5% 0.062W
3012	4822 051 30472	4.7kΩ 5% 0.062W
3013	4822 051 30103	10kΩ 5% 0.062W
3014	4822 116 52191	33Ω 5% 0.5W
3015	4822 116 52176	10Ω 5% 0.5W
3016	4822 051 30102	1kΩ 5% 0.062W
3017	4822 116 52191	33Ω 5% 0.5W
3018	4822 116 52176	10Ω 5% 0.5W
3019	4822 051 30102	1kΩ 5% 0.062W
3020	4822 051 30563	56kΩ 5% 0.062W
3021	4822 053 11478	4Ω 5% 2W
3022	4822 051 30331	330Ω 5% 0.062W
3023	4822 117 12925	47kΩ 1% 0.063W 0603
3024	4822 050 27503	75kΩ 1% 0,6W
3025	4822 117 12903	1.8kΩ 1% 0.063W 0603
3026	4822 101 11186	470Ω 30% 0.1W
3027	4822 117 12925	47kΩ 1% 0.063W 0603
3028	4822 117 10362	7.5kΩ 1% 0,1W
3029	4822 051 30102	1kΩ 5% 0.062W
3030	4822 051 30183	18kΩ 5% 0.062W
3031	2322 704 61103	11kΩ 1% 0603
3032	2322 704 61103	11kΩ 1% 0603
3033	4822 051 30222	2.2kΩ 5% 0.062W
3037	4822 051 30103	10kΩ 5% 0.062W
3038	4822 117 13632	100kΩ 1% 0603 0.62W
3039	4822 051 30105	1MΩ 5% 0.062W
3040	4822 117 10837	100kΩ 1% 0.1W
3041	4822 051 30333	33kΩ 5% 0.062W
3042	4822 051 30471	470Ω 5% 0.062W
3043	4822 051 30472	4.7kΩ 5% 0.062W
3044	4822 051 30102	1kΩ 5% 0.062W
3045	4822 051 30102	1kΩ 5% 0.062W
3046	4822 053 20565	5.6MΩ 5% 0.25W
3047	4822 051 30154	150kΩ 5% 0.062W
3048	4822 051 30472	4.7kΩ 5% 0.062W
3049	4822 051 30123	12kΩ 5% 0.062W
3050	4822 052 10398	3.9Ω 5% 0,33W
3051	4822 051 20399	39Ω 5% 0.1W
3053	2322 662 93131	10Ω PTC
3054	4822 050 21003	10kΩ 1% 0.6W
3056	4822 051 30331	330Ω 5% 0.062W
3057	4822 051 30101	100Ω 5% 0.062W
3058	4822 051 20105	1MΩ 5% 0.1W
3062	4822 051 30102	1kΩ 5% 0.062W
3064	4822 051 30103	10kΩ 5% 0.062W
3065	4822 051 30102	1kΩ 5% 0.062W
3066	4822 051 30103	10kΩ 5% 0.062W
3067	4822 051 30153	15kΩ 5% 0.062W
3070	4822 051 30103	10kΩ 5% 0.062W
3071	4822 117 12925	47kΩ 1% 0.063W 0603
3075	4822 116 83866	1MΩ 5% 0.5W
3076	4822 117 13632	100kΩ 1% 0603 0.62W
3077	4822 116 83866	1MΩ 5% 0.5W
3078	4822 117 13632	100kΩ 1% 0603 0.62W
3080	4822 051 30101	100Ω 5% 0.062W
3081	4822 051 30222	2.2kΩ 5% 0.062W
3083	4822 051 10102	1kΩ 2% 0.25W
3084	4822 051 30103	10kΩ 5% 0.062W
3085	4822 117 12925	47kΩ 1% 0.063W 0603
3086	4822 117 12925	47kΩ 1% 0.063W 0603
3087	4822 117 12925	47kΩ 1% 0.063W 0603
3088	4822 117 12925	47kΩ 1% 0.063W 0603
3090	4822 051 30101	100Ω 5% 0.062W
3091	4822 051 30102	1kΩ 5% 0.062W
3092	4822 051 30471	470Ω 5% 0.062W
3093	4822 051 30102	1kΩ 5% 0.062W
3095	4822 051 30471	470Ω 5% 0.062W
3096	4822 051 30562	5.6kΩ 5% 0.063W 0603
3097	4822 117 12968	820Ω 5% 0.62W
3110	4822 051 30102	1kΩ 5% 0.062W
3111	4822 051 30102	1kΩ 5% 0.062W
3112	4822 051 30102	1kΩ 5% 0.062W
3113	4822 051 30474	470kΩ 5% 0.062W
3114	4822 051 20564	560kΩ 5% 0.1W
3115	4822 117 12891	220kΩ 1% 0.063W 0603
3116	4822 051 30102	1kΩ 5% 0.062W
3117	4822 051 30103	10kΩ 5% 0.062W
3118	4822 116 83303	0.1Ω 2W
3119	4822 116 83303	0.1Ω 2W
3120	4822 117 12903	1.8kΩ 1% 0.063W 0603
3121	4822 117 12925	47kΩ 1% 0.063W 0603
3122	2322 734 67503	75kΩ 1% 0.062W 0805
3123	4822 117 10965	18kΩ 1% 0.1W
3124	2120 108 94004	7.5kΩ 1% 0603
3125	2120 108 94004	7.5kΩ 1% 0603
3126	4822 051 30222	2.2kΩ 5% 0.062W
3127	4822 101 11187	1kΩ 30% 0,1W
3128	4822 051 30333	33kΩ 5% 0.062W
3129	4822 053 10103	10kΩ 5% 1W
3130	4822 051 30102	1kΩ 5% 0.062W
3131	2322 704 61103	11kΩ 1% 0603
3133	4822 051 30101	100Ω 5% 0.062W
3134	4822 051 30331	330Ω 5% 0.062W
3135	4822 117 12925	47kΩ 1% 0.063W 0603
3136	4822 117 12925	47kΩ 1% 0.063W 0603
3138	4822 117 11503	220Ω 1% 0.1W
3139	4822 117 11503	220Ω 1% 0.1W
3140	2322 734 67503	75kΩ 1% 0.062W 0805
3141	2322 734 67503	75kΩ 1% 0.062W 0805
3142	5322 117 12487	1kΩ 1% 0.125W
3143	4822 053 11472	4kΩ 5% 2W
3146	2306 327 90035	Jump. 0.22Ω
3147	2322 704 61103	11kΩ 1% 0603
3148	4822 117 12925	47kΩ 1% 0.063W 0603
3149	4822 051 30103	10kΩ 5% 0.062W
3150	4822 117 10837	100kΩ 1% 0.1W
3151	4822 051 30103	10kΩ 5% 0.062W
3152	4822 117 11373	100Ω 1% 0805
3200	2322 730 61224	220kΩ 5% 0.062W 0805
3201	4822 053 10103	10kΩ 5% 1W
3202	4822 051 30479	47Ω 5% 0.062W
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 117 13632	100kΩ 1% 0603 0.62W
3205	4822 117 13632	100kΩ 1% 0603 0.62W
3212	4822 051 30102	1kΩ 5% 0.062W
3213	4822 051 30105	1MΩ 5% 0.062W
3214	4822 117 12889	270kΩ 1% 0.063W 0603
3216	4822 051 30102	1kΩ 5% 0.062W
3217	4822 051 30103	10kΩ 5% 0.062W
3218	4822 116 83303	0.1Ω 2W
3219	4822 116 83303	0.1Ω 2W
3224	5322 117 13028	12kΩ 1% 0.063W 0603
3225	2322 704 61103	11kΩ 1% 0603
3226	4822 051 30103	10kΩ 5% 0.062W
3228	4822 051 30151	150Ω 5% 0.062W
3240	4822 051 30102	1kΩ 5% 0.062W
3241	4822 051 30102	1kΩ 5% 0.062W
3260	4822 051 30102	1kΩ 5% 0.062W
3261	4822 051 30102	1kΩ 5% 0.062W
3262	4822 117 11188	20kΩ 1% 0,1W
3264	4822 051 30682	6.8kΩ 5% 0.062W
3265	4822 051 30102	1kΩ 5% 0.062W
3268	4822 051 30102	1kΩ 5% 0.062W
3292	4822 051 30561	560Ω 5% 0.062W
3300	4822 117 13579	220kΩ 1% 0.1W 0805
3301	4822 117 13579	220kΩ 1% 0.1W 0805
3302	2312 916 71004	100kΩ 1%
3303	2312 916 71004	100kΩ 1%
3304	4822 051 30102	1kΩ 5% 0.062W
3305	2312 916 76202	6.2kΩ 1%
3306	2322 704 61103	11kΩ 1% 0603
3307	2322 704 61103	11kΩ 1% 0603
3307	5322 117 13028	12kΩ 1% 0.063W 0603
3308	4822 051 30102	1kΩ 5% 0.062W
3309	4822 051 30102	1kΩ 5% 0.062W
3310	4822 051 30472	4.7kΩ 5% 0.062W
3311	4822 117 13579	220kΩ 1% 0.1W 0805
3312	4822 051 30102	1kΩ 5% 0.062W
3313	2120 108 94004	7.5kΩ 1% 0603
3316	2312 916 77502	7.5kΩ 1%
3317	2120 108 94004	7.5kΩ 1% 0603
3318	4822 051 30102	1kΩ 5% 0.062W
3319	4822 051 30472	4.7kΩ 5% 0.062W
3320	2322 704 61103	11kΩ 1% 0603
3320	4822 117 10833	10kΩ 1% 0.1W
3321	4822 051 30102	1kΩ 5% 0.062W
3322	4822 117 10833	10kΩ 1% 0.1W
3322	5322 117 13042	3.9kΩ 1% 0.063W 0603
3323	4822 117 10833	10kΩ 1% 0.1W
3323	5322 117 13028	12kΩ 1% 0.063W 0603
3324	4822 051 30102	1kΩ 5% 0.062W
3325	4822 051 30471	470Ω 5% 0.062W
3326	4822 051 30472	4.7kΩ 5% 0.062W
3327	4822 051 30103	10kΩ 5% 0.062W
3328	4822 051 30103	10kΩ 5% 0.062W
3330	4822 051 30102	1kΩ 5% 0.062W
3331	4822 051 30472	4.7kΩ 5% 0.062W
3332	4822 117 11144	3.9kΩ 1% 0.1W
3333	4822 051 30102	1kΩ 5% 0.062W
3334	4822 117 12955	2.7kΩ 1% 0.1W 0805
3335	4822 116 83933	15kΩ 1% 0.1W
3338	4822 051 30102	1kΩ 5% 0.062W
3339	4822 051 30472	4.7kΩ 5% 0.062W
3340	4822 051 30102	1kΩ 5% 0.062W
3341	4822 051 30103	10kΩ 5% 0.062W
3342	4822 051 30103	10kΩ 5% 0.062W
3343	4822 051 30102	1kΩ 5% 0.062W
3344	4822 051 30102	1kΩ 5% 0.062W
3345	4822 051 30472	4.7kΩ 5% 0.062W
3346	4822 051 30102	1kΩ 5% 0.062W
3347	4822 051 30331	330Ω 5% 0.062W
3348	4822 051 30331	330Ω 5% 0.062W
3349	4822 051 30102	1kΩ 5% 0.062W
3350	4822 051 30472	4.7kΩ 5% 0.062W
3351	4822 051 30103	10kΩ 5% 0.062W
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 051 30103	10kΩ 5% 0.062W
3354	4822 051 30472	4.7kΩ 5% 0.062W
3358	4822 051 30222	2.2kΩ 5% 0.062W
3359	4822 051 30472	4.7kΩ 5% 0.062W
3360	4822 117 11817	1.2kΩ 1% 1/16W
3361	4822 051 30472	4.7kΩ 5% 0.062W
3362	4822 051 30102	1kΩ 5% 0.062W
3363	4822 051 30102	1kΩ 5% 0.062W
3364	4822 051 30102	1kΩ 5% 0.062W
3365	4822 051 30102	1kΩ 5% 0.062W
3366	4822 051 30103	10kΩ 5% 0.062W
3367	4822 051 30103	10kΩ 5% 0.062W
3368	2120 660 90042	PTC 330Ω 16V
3369	4822 051 30272	2.7kΩ 5% 0.062W
3370	4822 051 30101	100Ω 5% 0.062W
3371	4822 051 30101	100Ω 5% 0.062W
3372	9337 224 50116	Temp sens. KTY81-210
3372	9337 224 60116	Temp sens. KTY81-220
3373	4822 051 30472	4.7kΩ 5% 0.062W
3374	4822 117 12925	47kΩ 1% 0.063W 0603
3376	4822 117 12925	47kΩ 1% 0.063W 0603
3377	4822 051 30472	4.7kΩ 5% 0.062W
3378	4822 051 30103	10kΩ 5% 0.062W
3380	4822 117 12925	47kΩ 1% 0.063W 0603
3381	4822 117 12925	47kΩ 1% 0.063W 0603
3382	5322 117 13039	222kΩ 1% 0.063W 0603
3385	4822 117 13632	100kΩ 1% 0603 0.62W
3386	4822 117 13632	100kΩ 1% 0603 0.62W
3387	4822 051 30471	470Ω 5% 0.062W
3388	4822 051 30102	1kΩ 5% 0.062W
3389	4822 051 30102	1kΩ 5% 0.062W
3390	4822 051 30103	10kΩ 5% 0.062W
3391	4822 051 30103	10kΩ 5% 0.062W
3392	4822 051 30102	1kΩ 5% 0.062W
3393	4822 051 30103	10kΩ 5% 0.062W
3394	4822 051 30102	1kΩ 5% 0.062W
3395	4822 051 30103	10kΩ 5% 0.062W
3396	2312 916 71004	100kΩ 1%
3397	2312 916 71004	100kΩ 1%
3400	2322 595 90021	VDR 1mA/495V 850V
3401	4822 117 10118	1MΩ 5% 0,5W
3402	4822 053 21475	4.7MΩ 5% 0,5W
3403	4822 053 21475	4.7MΩ 5% 0,5W
3404	4822 116 83872	220Ω 5% 0.5W
3450	2322 662 93131	10Ω PTC
3451	2322 662 93131	10Ω PTC
3452	2122 612 00051	NTC 1Ω 20%
3453	2122 612 00051	NTC 1Ω 20%
3460	4822 051 30472	4.7kΩ 5% 0.062W
3461	4822 051 30103	10kΩ 5% 0.062W
3463	4822 051 30103	10kΩ 5% 0.062W
3465	4822 051 30103	10kΩ 5% 0.062W
3467	4822 051 30103	10kΩ 5% 0.062W
3469	4822 051 30472	4.7kΩ 5% 0.062W
3470	4822 051 30103	10kΩ 5% 0.062W
3501	4822 051 30101	100Ω 5% 0.062W
3502	4822 051 30471	470Ω 5% 0.062W
3503	5322 117 13026	4.7kΩ 1% 0.063W 0603
3503	5322 117 13042	3.9kΩ 1% 0.063W 0603
3504	5322 117 13024	33kΩ 1% 0.063W 0603
3505	4822 117 11139	1.5kΩ 1% 0.1W
3506	2322 662 93131	10Ω PTC
3507	4822 053 20225	2.2MΩ 5% 0.25W
3508	2322 194 63109	10Ω 5% 2W
3520	4822 051 30109	10Ω 5% 0.062W
3530	4822 117 13632	100kΩ 1% 0603 0.62W
3608	4822 116 52179	12Ω 5% 0,5W
3610	5322 116 53564	3.3Ω 5% 0.5W
3611	4822 050 11002	1kΩ 1% 0.4W
3614	2120 106 90565	0.1Ω 5% 1W
3615	2120 106 90565	0.1Ω 5% 1W
3639	4822 051 30102	1kΩ 5% 0.062W
3640	4822 051 30331	330Ω 5% 0.062W
3641	4822 051 30471	470Ω 5% 0.062W
3642	4822 051 30101	100Ω 5% 0.062W
3650	2322 156 21305	1.3MΩ 1% 0,25W
3651	4822 051 30103	10kΩ 5% 0.062W
3652	4822 051 30105	1MΩ 5% 0.062W
3653	4822 116 52231	820Ω 5% 0.5W
3654	4822 051 30103	10kΩ 5% 0.062W
3655	4822 051 30102	1kΩ 5% 0.062W
3663	4822 052 10108	1Ω 5% 0.33W
3664	2322 734 62704	270kΩ 1% 0.1W 0805

3665	4822 051 30103	10kΩ 5% 0.062W
3666	4822 116 52175	100Ω 5% 0.5W
3667	4822 051 30103	10kΩ 5% 0.062W
3668	4822 052 11102	1kΩ 5% 0,5W
3670	4822 050 27504	750kΩ 1% 0,6W
3671	4822 117 10833	10kΩ 1% 0.1W
3673	4822 052 11102	1kΩ 5% 0,5W
3674	4822 053 20105	1MΩ 5% 0,25W
3675	4822 053 10221	220Ω 5% 1W
3676	4822 053 10471	470Ω 5% 1W
3676	4822 053 11471	470Ω 5% 2W
3700	4822 051 30331	330Ω 5% 0.062W
3701	4822 051 30222	2.2kΩ 5% 0.062W
3702	4822 051 30222	2.2kΩ 5% 0.062W
3703	4822 051 30102	1kΩ 5% 0.062W
3706	4822 051 30331	330Ω 5% 0.062W
3707	4822 051 30222	2.2kΩ 5% 0.062W
3708	4822 051 30222	2.2kΩ 5% 0.062W
3709	4822 051 30102	1kΩ 5% 0.062W
3999	4822 051 30102	1kΩ 5% 0.062W
4261	4822 051 30008	Jumper 0603
4268	4822 051 30008	Jumper 0603
4300	4822 051 30008	Jumper 0603

5001	3128 138 38561	Transformer CE136H
5001	8222 289 53691	Driver transf. CE136H
5002▲	3128 138 40821	Transformer CE423D
5003	4822 157 71442	150µH 10%
5004▲	3128 138 40821	Transformer CE423D
5120	3128 138 40381	Inductor Coil CU20V
5200	3198 018 71010	100µF 10%
5220	3128 138 70541	Transformer CT296F
5224	2422 535 95273	6.8µH 20%
5225	2422 535 95273	6.8µH 20%
5260	3198 018 71010	100µF 10%
5268	2422 536 00288	100µH 10%
5290	3128 138 40391	Transformer CU15
5291	4822 157 71467	39µH 10%
5292	4822 157 71467	39µH 10%
5293	4822 157 71467	39µH 10%
5401▲	3122 138 38901	Mains filter CU28D3
5402▲	3122 138 38901	Mains filter CU28D3
5403	8228 001 32681	Filter U20 DIFF. mode
5404▲	3122 138 38901	Mains filter CU28D3
5500▲	3128 138 40361	Transformer CE165T
5505	4822 157 71467	39µH 10%
5600	3128 138 41031	Transformer CE423D
5612	4822 157 11411	Bead 83Ω at 100MHz
5703	4822 157 71414	1000µH 10%
5704	4822 157 11499	BLM11P600SPT
5709	4822 157 71414	1000µH 10%
5710	4822 157 11499	BLM11P600SPT

6004	4822 130 11397	BAS316
6005	4822 130 11397	BAS316
6007	4822 130 30621	1N4148
6008	4822 130 30621	1N4148
6009	4822 130 11397	BAS316
6010	4822 130 11397	BAS316
6011	4822 130 11397	BAS316
6012	4822 130 34281	BZX79-B15
6013	4822 130 34281	BZX79-B15
6018	4822 130 11397	BAS316
6019	4822 130 11397	BAS316
6021	9340 550 66112	BYV28-200/24
6022	4822 130 11397	BAS316
6023	4822 130 11397	BAS316
6027	4822 130 30621	1N4148
6028	4822 130 30621	1N4148
6031	9322 129 37685	BZM55-C5V6
6032	9322 129 37685	BZM55-C5V6
6033	4822 130 11594	BZX284-C47
6034	4822 130 11397	BAS316
6035	4822 130 11397	BAS316
6041	9322 167 08687	STTH2003CF
6042	9322 150 18685	BZX384-C47
6043	5322 130 31938	BYV27-200
6044	9322 167 08687	STTH2003CF
6045	9340 550 66112	BYV28-200/24
6046	9322 167 08687	STTH2003CF
6047	9322 167 08687	STTH2003CF
6050	4822 130 31024	BZX79-B18
6054	4822 130 41601	BYV95A
6054	4822 130 42488	BYD33D
6055	4822 130 41601	BYV95A
6055	4822 130 42488	BYD33D
6061	4822 130 31024	BZX79-B18
6075	9336 018 60133	BZT03-C300
6077	9336 018 60133	BZT03-C300
6086	4822 130 11397	BAS316
6086	4822 130 83757	BAS216
6095	4822 130 11397	BAS316
6111	4822 130 11397	BAS316
6112	4822 130 11397	BAS316
6113	4822 130 11397	BAS316
6117	4822 130 11152	UDZ18B
6120	4822 130 11596	BYW29EX-200
6123	4822 130 11397	BAS316
6133	4822 130 11397	BAS316
6142	9340 550 66112	BYV28-200/24
6202	4822 130 11397	BAS316
6205	4822 130 11152	UDZ18B
6206	4822 130 11397	BAS316
6211	9322 128 65685	RS1G
6213	4822 130 11397	BAS316
6216	4822 130 11152	UDZ18B
6224	9322 173 47687	STPS20L40CFP
6225	9322 173 47687	STPS20L40CFP
6230	5322 130 31938	BYV27-200
6230	9340 550 66112	BYV28-200/24
6232	4822 130 11522	UDZ15B
6260	4822 130 11421	BT151X-500R
6267	9322 161 77682	SB540L-7024
6291	9322 131 78682	D4SBL20
6312	4822 130 11528	1PS76SB10
6313	4822 130 11528	1PS76SB10
6314	4822 130 11397	BAS316
6321	4822 130 11528	1PS76SB10
6322	4822 130 11528	1PS76SB10
6324	4822 130 11397	BAS316
6325	4822 130 11416	PDZ6.8B
6333	4822 130 11528	1PS76SB10
6334	4822 130 11528	1PS76SB10
6335	4822 130 11397	BAS316
6340	4822 130 11528	1PS76SB10
6341	4822 130 11528	1PS76SB10
6342	4822 130 11397	BAS316
6344	4822 130 10838	UDZ3.3B
6347	4822 130 10654	BAT254
6348	4822 130 20297	BT169B
6362	4822 130 11397	BAS316
6364	4822 130 11397	BAS316
6365	4822 130 11397	BAS316
6375	4822 130 11397	BAS316
6376	4822 130 11397	BAS316
6378	4822 130 11528	1PS76SB10
6390	4822 130 11397	BAS316
6460	4822 130 11397	BAS316
6461	4822 130 11397	BAS316
6470	4822 130 11397	BAS316
6471	4822 130 11397	BAS316
6501	9336 018 60133	BZT03-C300
6502	9336 018 60133	BZT03-C300
6503	9322 128 65685	RS1G
6504	9322 128 65685	RS1G
6505	9322 161 76682	SB340L-7024
6510	9322 099 61685	BYG10J
6511	9322 099 61685	BYG10J
6512	9322 099 61685	BYG10J
6513	9322 099 61685	BYG10J
6520	4822 130 11397	BAS316
6530	4822 130 11152	UDZ18B
6531	4822 130 11152	UDZ18B
6600	9322 131 67679	GBU8JL-7000
6605	9322 161 81682	1N5406L-7024
6606	9322 161 81682	1N5406L-7024
6608	4822 130 11397	BAS316
6609	4822 130 32152	BZT03-C18
6611	3139 120 52021	BYV29X-500
6640	9339 680 20115	PRLL5819
6641	4822 130 11397	BAS316
6642	9339 680 20115	PRLL5819
6643	4822 130 11152	UDZ18B
6651	9339 680 20115	PRLL5819
6653	9322 129 39685	BZM55-C8V2
6654	4822 130 11397	BAS316
6660	9322 128 65685	RS1G
6661	9322 128 65685	RS1G
6663	4822 130 11397	BAS316
6665	9339 680 20115	PRLL5819
6700	4822 130 11152	UDZ18B
6703	9339 680 20115	PRLL5819
6706	4822 130 11152	UDZ18B
6709	9339 680 20115	PRLL5819

7001	9322 108 21682	MC34067P
7002▲	9322 149 04682	TCET1102
7003▲	9322 149 04682	TCET1102
7005	9322 164 01687	STU16NB50I
7005	9322 192 18687	STP15NK50ZFP
7006	9322 164 01687	STU16NB50I
7006	9322 192 18687	STP15NK50ZFP
7007	4822 130 40854	BC327
7008	4822 130 40854	BC327
7009	3198 010 42310	BC847BW
7010	4822 209 81397	TL431CLPST
7011	4822 209 81397	TL431CLPST
7017	3198 010 42320	BC857BW
7018	3198 010 42310	BC847BW
7020	9335 671 30126	BC517
7021	9335 671 30126	BC517
7022	3198 010 42310	BC847BW
7042	4822 130 41646	BF423
7050	9340 557 17118	PSMN035-150B
7052	9322 165 02668	IRFR18N15D
7058	3198 010 42310	BC847BW
7059	4822 130 41782	BF422
7090	3198 010 42320	BC857BW
7091	3198 010 42320	BC857BW
7092	4822 130 41246	BC327-25
7093	4822 209 80591	LM317T
7110	4822 130 41646	BF423
7111	4822 130 41646	BF423
7112	9352 673 56112	TEA1507P/N1
7117	9340 557 17118	PSMN035-150B
7120	9322 149 04682	TCET1102
7121	4822 209 81397	TL431CLPST
7130	4822 209 81397	TL431CLPST
7134	3198 010 42310	BC847BW
7140	9340 425 10115	BC857BS
7142	4822 130 41646	BF423
7143	3198 010 42310	BC847BW
7144	4822 130 41782	BF422
7145	3198 010 42320	BC857BW
7200	4822 130 63316	BSN304
7202	9965 000 04199	BSN20
7212	9352 673 56112	TEA1507P/N1
7217	9340 557 18127	PSMN070-200P
7220	9322 149 04682	TCET1102
7227	4822 209 81397	TL431CLPST
7230	4822 209 12334	L4940V85
7260	9322 166 31682	IC L4973V3.3
7304	4822 209 81397	TL431CLPST
7308	4822 209 60177	LM339D
7326	3198 010 42310	BC847BW
7327	3198 010 42310	BC847BW
7330	4822 209 60177	LM339D
7341	3198 010 42320	BC857BW
7348	3198 010 42310	BC847BW
7351	3198 010 42310	BC847BW
7352	3198 010 42310	BC847BW
7362	3198 010 42310	BC847BW
7366	4822 209 63709	LM324D
7370	5322 209 33172	PCF8574AT
7375	3198 010 42310	BC847BW
7376	3198 010 42310	BC847BW
7389	3198 010 42320	BC857BW
7391	3198 010 42320	BC857BW
7393	3198 010 42310	BC847BW
7460	4822 130 42804	BC817-25
7460	9340 219 30115	BC817-25W
7465	3198 010 42320	BC857BW
7470	4822 130 42804	BC817-25
7470	9340 219 30115	BC817-25W
7500	9322 037 99682	TNY256P
7501▲	9322 149 04682	TCET1102
7502	4822 209 14933	TL431IZ
7530	9322 157 95668	STD16NE06L
7531	9322 157 95668	STD16NE06L
7540	4822 209 80817	L7805CV
7608	5322 130 44593	BC369
7610	9322 130 47687	STY34NB50
7640	4822 130 63316	BSN304
7641	4822 130 40981	BC337-25
7650	9322 130 69682	IC MC33368P
7654	3198 010 42320	BC857BW
7660	5322 209 71759	MCT7815CT
7700	9322 115 29668	SI9433DY
7701	3198 010 42310	BC847BW
7706	9322 115 29668	SI9433DY
7707	3198 010 42310	BC847BW

SCAVIO Panel [SC]

Various

0020	3122 128 13681	Conn. plate base
0252	3122 121 67261	Earth sheet
0301	2422 025 17396	Connector 20P m
0305	2422 025 16705	Connector 12P m
0318	2422 025 17233	Connector 32P f

0319	2422 025 17047	Connector 13P m
0320	2422 015 19565	D-lock 12.7mm
0320	2422 025 16545	Connector 10P m
0376	2422 025 16768	Connector 9P f
0378	2422 026 05071	Socket 4P f Wh/Rd
0382	2422 025 17274	Connector 10P m
0385	2422 025 17274	Connector 10P m
0388	2422 025 16704	Connector 8P m
0600	3122 357 00421	Software (check Prod.Surv.)
0601	3122 357 00382	Software (check Prod. surv.)
0603	3122 357 00285	Software (check Prod.Surv.)
1032	3122 357 21643	VGA Connector panel
1061⚠	3122 358 76342	Mains inlet unit
1063	3122 357 22061	PCA SCAVIO basic
1100⚠	2422 086 11009	Fuse T1.A 63V 2410
1105⚠	2422 086 11092	Fuse F0.5A 50V 1206
1170⚠	2422 086 11092	Fuse F0.5A 50V 1206
1171⚠	2422 086 11013	Fuse F0.315A 32V 1206
1415	2422 543 89022	Xtal 6MHz 20pF CX5F
1570	2422 543 01115	Crystal 24.576MHz
1575⚠	2422 086 11092	Fuse F0.5A 50V 1206
1670⚠	2422 086 10964	Fuse T0.630A 63V
8305	3104 311 05181	Cable 12P/315/12P
8318	3122 358 76621	Foil S18-V18
8319	3104 311 04231	Cable 13P/120/13P
8391	3122 358 76331	Tree assy M91-CP91

⊣⊢

2142	2238 586 59812	100nF 20-80% 50V 0603
2143	4822 124 12095	100µF 20% 16V
2144	5322 124 41945	22µF 20% 35V
2146	3198 017 34730	47nF 16V 0603
2150	5322 124 41945	22µF 20% 35V
2151	3198 016 31020	1nF 10% 25V 0603
2152	3198 017 34730	47nF 16V 0603
2156	5322 124 41945	22µF 20% 35V
2158	3198 017 34730	47nF 16V 0603
2162	2238 586 59812	100nF 20-80% 50V 0603
2164	4822 124 12095	100µF 20% 16V
2165	2238 586 59812	100nF 20-80% 50V 0603
2166	2238 586 59812	100nF 20-80% 50V 0603
2167	4822 124 12095	100µF 20% 16V
2170	2238 586 59812	100nF 20-80% 50V 0603
2171	2238 586 59812	100nF 20-80% 50V 0603
2172	2238 586 59812	100nF 20-80% 50V 0603
2173	2238 586 59812	100nF 20-80% 50V 0603
2174	2238 586 59812	100nF 20-80% 50V 0603
2175	2238 586 59812	100nF 20-80% 50V 0603
2176	2238 586 59812	100nF 20-80% 50V 0603
2177	2238 586 59812	100nF 20-80% 50V 0603
2178	2238 586 59812	100nF 20-80% 50V 0603
2179	2238 586 59812	100nF 20-80% 50V 0603
2180	2238 586 59812	100nF 20-80% 50V 0603
2181	2238 586 59812	100nF 20-80% 50V 0603
2182	2238 586 59812	100nF 20-80% 50V 0603
2183	2238 586 59812	100nF 20-80% 50V 0603
2184	2238 586 59812	100nF 20-80% 50V 0603
2185	2238 586 59812	100nF 20-80% 50V 0603
2186	2238 586 59812	100nF 20-80% 50V 0603
2187	2238 586 59812	100nF 20-80% 50V 0603
2188	2238 586 59812	100nF 20-80% 50V 0603
2189	2238 586 59812	100nF 20-80% 50V 0603
2190	2238 586 59812	100nF 20-80% 50V 0603
2191	2238 586 59812	100nF 20-80% 50V 0603
2192	2238 586 59812	100nF 20-80% 50V 0603
2193	2238 586 59812	100nF 20-80% 50V 0603
2195	4822 124 23002	10µF 20% 16V
2196	4822 124 23002	10µF 20% 16V
2197	4822 124 23002	10µF 20% 16V
2198	4822 124 23002	10µF 20% 16V
2199	4822 124 23002	10µF 20% 16V
2205	2238 586 59812	100nF 20-80% 50V 0603
2206	2238 586 59812	100nF 20-80% 50V 0603
2207	2238 586 59812	100nF 20-80% 50V 0603
2208	4822 126 14127	39nF 10% 50V 0805
2210	5322 126 11581	3.9nF 10% 63V 0603
2212	2238 586 59812	100nF 20-80% 50V 0603
2300	4822 124 12095	100µF 20% 16V
2301	2238 586 59812	100nF 20-80% 50V 0603
2302	4822 124 23002	10µF 20% 16V
2304	2238 586 59812	100nF 20-80% 50V 0603
2308	5322 124 41945	22µF 20% 35V
2310	2238 586 59812	100nF 20-80% 50V 0603
2311	2238 586 59812	100nF 20-80% 50V 0603
2318	5322 124 41945	22µF 20% 35V
2328	5322 124 41945	22µF 20% 35V
2337	2020 552 94427	100pF 5% 50v 0603
2340	2238 586 59812	100nF 20-80% 50V 0603
2351	2238 586 59812	100nF 20-80% 50V 0603
2352	2238 586 59812	100nF 20-80% 50V 0603
2353	4822 124 23002	10µF 20% 16V
2354	2238 586 59812	100nF 20-80% 50V 0603
2355	2238 586 59812	100nF 20-80% 50V 0603
2356	2238 586 59812	100nF 20-80% 50V 0603
2370	2238 586 59812	100nF 20-80% 50V 0603
2372	2238 586 59812	100nF 20-80% 50V 0603
2375	2238 586 59812	100nF 20-80% 50V 0603
2381	2238 586 59812	100nF 20-80% 50V 0603
2382	2238 586 59812	100nF 20-80% 50V 0603
2383	2238 586 59812	100nF 20-80% 50V 0603
2415	2238 867 75339	33pF 5% 50V 0603
2416	4822 126 11669	27pF 5% 50V 0603
2418	3198 016 31020	1nF 10% 25V 0603
2419	3198 016 31020	1nF 10% 25V 0603
2420	2238 586 59812	100nF 20-80% 50V 0603
2432	2238 586 59812	100nF 20-80% 50V 0603
2433	2238 586 59812	100nF 20-80% 50V 0603
2434	2238 586 59812	100nF 20-80% 50V 0603
2435	2238 586 59812	100nF 20-80% 50V 0603
2436	2238 586 59812	100nF 20-80% 50V 0603
2437	2238 586 59812	100nF 20-80% 50V 0603
2438	4822 126 13879	220nF 20% 16V
2439	4822 126 13879	220nF 20% 16V
2446	2238 586 59812	100nF 20-80% 50V 0603
2447	2238 586 59812	100nF 20-80% 50V 0603
2448	2238 586 59812	100nF 20-80% 50V 0603
2499	2238 586 59812	100nF 20-80% 50V 0603
2500	2238 586 59812	100nF 20-80% 50V 0603
2501	4822 126 14226	82pF 5% 50V 0603
2502	4822 126 14226	82pF 5% 50V 0603
2503	4822 126 14226	82pF 5% 50V 0603
2504	4822 126 14226	82pF 5% 50V 0603
2505	4822 126 14226	82pF 5% 50V 0603
2506	2238 586 59812	100nF 20-80% 50V 0603
2511	2238 586 59812	100nF 20-80% 50V 0603
2513	2238 586 59812	100nF 20-80% 50V 0603
2515	2238 586 59812	100nF 20-80% 50V 0603
2520	4822 124 23002	10µF 20% 16V
2521	4822 124 23002	10µF 20% 16V
2522	4822 124 23002	10µF 20% 16V
2523	4822 124 23002	10µF 20% 16V
2524	4822 124 23002	10µF 20% 16V
2530	5322 124 41945	22µF 20% 35V
2531	2238 586 59812	100nF 20-80% 50V 0603
2533	2238 586 59812	100nF 20-80% 50V 0603
2534	2238 586 59812	100nF 20-80% 50V 0603
2535	2238 586 59812	100nF 20-80% 50V 0603
2537	2238 586 59812	100nF 20-80% 50V 0603
2538	3198 016 31020	1nF 10% 25V 0603
2541	2238 586 59812	100nF 20-80% 50V 0603
2546	3198 016 31020	1nF 10% 25V 0603
2547	3198 016 31020	1nF 10% 25V 0603
2548	3198 016 31020	1nF 10% 25V 0603
2550	3198 016 31020	1nF 10% 25V 0603
2551	3198 016 31020	1nF 10% 25V 0603
2552	3198 016 31020	1nF 10% 25V 0603
2553	3198 016 31020	1nF 10% 25V 0603
2554	2238 586 59812	100nF 20-80% 50V 0603
2555	2238 586 59812	100nF 20-80% 50V 0603
2557	3198 016 31020	1nF 10% 25V 0603
2558	3198 016 31020	1nF 10% 25V 0603
2559	3198 016 31020	1nF 10% 25V 0603
2560	3198 016 31020	1nF 10% 25V 0603
2562	3198 016 31020	1nF 10% 25V 0603
2563	3198 016 31020	1nF 10% 25V 0603
2564	3198 016 31020	1nF 10% 25V 0603
2565	3198 016 31020	1nF 10% 25V 0603
2566	3198 016 31020	1nF 10% 25V 0603
2570	3198 016 31020	1nF 10% 25V 0603
2572	2238 586 59812	100nF 20-80% 50V 0603
2573	4822 124 23002	10µF 20% 16V
2574	2238 586 59812	100nF 20-80% 50V 0603
2581	2238 586 59812	100nF 20-80% 50V 0603
2583	2238 586 59812	100nF 20-80% 50V 0603
2584	2238 586 59812	100nF 20-80% 50V 0603
2600	2238 586 59812	100nF 20-80% 50V 0603
2601	2238 586 59812	100nF 20-80% 50V 0603
2602	2238 586 59812	100nF 20-80% 50V 0603
2603	2238 586 59812	100nF 20-80% 50V 0603
2604	2238 586 59812	100nF 20-80% 50V 0603
2605	2238 586 59812	100nF 20-80% 50V 0603
2606	2238 586 59812	100nF 20-80% 50V 0603
2607	2238 586 59812	100nF 20-80% 50V 0603
2608	2238 586 59812	100nF 20-80% 50V 0603
2609	2238 586 59812	100nF 20-80% 50V 0603
2610	2238 586 59812	100nF 20-80% 50V 0603
2611	2238 586 59812	100nF 20-80% 50V 0603
2612	2238 586 59812	100nF 20-80% 50V 0603
2613	2238 586 59812	100nF 20-80% 50V 0603
2614	2238 586 59812	100nF 20-80% 50V 0603
2615	2238 586 59812	100nF 20-80% 50V 0603
2616	2238 586 59812	100nF 20-80% 50V 0603
2617	2238 586 59812	100nF 20-80% 50V 0603
2618	2238 586 59812	100nF 20-80% 50V 0603
2619	2238 586 59812	100nF 20-80% 50V 0603
2620	2238 586 59812	100nF 20-80% 50V 0603
2621	2238 586 59812	100nF 20-80% 50V 0603
2622	2238 586 59812	100nF 20-80% 50V 0603
2623	2238 586 59812	100nF 20-80% 50V 0603
2624	2238 586 59812	100nF 20-80% 50V 0603
2625	2238 586 59812	100nF 20-80% 50V 0603
2628	2238 586 59812	100nF 20-80% 50V 0603
2629	4822 122 33741	10pF 10% 50V
2630	2238 586 59812	100nF 20-80% 50V 0603
2640	2238 586 59812	100nF 20-80% 50V 0603
2641	3198 016 31020	1nF 10% 25V 0603
2642	4822 124 23002	10µF 20% 16V
2643	4822 124 23002	10µF 20% 16V
2644	4822 124 23002	10µF 20% 16V
2645	4822 124 23002	10µF 20% 16V
2646	4822 124 23002	10µF 20% 16V
2647	4822 124 23002	10µF 20% 16V
2648	4822 124 23002	10µF 20% 16V
2649	4822 124 23002	10µF 20% 16V
2655	2238 586 59812	100nF 20-80% 50V 0603
2656	2238 586 59812	100nF 20-80% 50V 0603
2657	2238 586 59812	100nF 20-80% 50V 0603
2658	2238 586 59812	100nF 20-80% 50V 0603
2659	2238 586 59812	100nF 20-80% 50V 0603
2660	2238 586 59812	100nF 20-80% 50V 0603
2661	2238 586 59812	100nF 20-80% 50V 0603
2662	2238 586 59812	100nF 20-80% 50V 0603
2663	2238 586 59812	100nF 20-80% 50V 0603
2670	2238 586 59812	100nF 20-80% 50V 0603
2671	2238 586 59812	100nF 20-80% 50V 0603
2672	2238 586 59812	100nF 20-80% 50V 0603
2673	2238 586 59812	100nF 20-80% 50V 0603
2674	2238 586 59812	100nF 20-80% 50V 0603
2694	3198 016 31080	1pF 25% 50V 0603
2695	3198 016 31080	1pF 25% 50V 0603
2696	3198 016 31080	1pF 25% 50V 0603
2697	3198 016 31080	1pF 25% 50V 0603
2698	3198 016 31080	1pF 25% 50V 0603
2699	3198 016 31080	1pF 25% 50V 0603
2711	2020 552 94427	100pF 5% 50v 0603
2712	4822 126 14472	1µF 10% 10V 0805
2715	2238 586 59812	100nF 20-80% 50V 0603
2716	4822 126 11785	47pF 5% 50V 0603
2717	4822 126 14472	1µF 10% 10V 0805
2721	2020 552 94427	100pF 5% 50v 0603
2722	4822 126 14472	1µF 10% 10V 0805
2726	4822 126 11785	47pF 5% 50V 0603
2727	4822 126 14472	1µF 10% 10V 0805
2731	2020 552 94427	100pF 5% 50v 0603
2741	2020 552 94427	100pF 5% 50v 0603
2799	5322 124 41945	22µF 20% 35V
2800	4822 124 12095	100µF 20% 16V
2802	4822 124 23002	10µF 20% 16V
2803	4822 124 23002	10µF 20% 16V
2804	3198 016 31020	1nF 10% 25V 0603
2810	4822 124 12095	100µF 20% 16V
2811	3198 016 31020	1nF 10% 25V 0603
2812	3198 016 31020	1nF 10% 25V 0603
2813	3198 016 31020	1nF 10% 25V 0603
2814	4822 126 14585	100nF 10% 50V
2815	3198 016 31020	1nF 10% 25V 0603
2816	4822 124 23002	10µF 20% 16V
2817	2238 586 59812	100nF 20-80% 50V 0603
2818	3198 016 31020	1nF 10% 25V 0603
2819	3198 016 31020	1nF 10% 25V 0603
2820	4822 124 23002	10µF 20% 16V
2821	4822 124 23002	10µF 20% 16V
2822	4822 126 14247	1.5nF 50V 0603
2823	4822 124 23002	10µF 20% 16V
2824	4822 126 14247	1.5nF 50V 0603
2825	3198 016 31020	1nF 10% 25V 0603
2826	4822 126 14472	1µF 10% 10V 0805
2827	4822 126 14472	1µF 10% 10V 0805
2828	3198 016 31020	1nF 10% 25V 0603
2829	4822 124 23002	10µF 20% 16V
2830	2238 586 59812	100nF 20-80% 50V 0603
2831	2238 586 59812	100nF 20-80% 50V 0603
2833	4822 126 14247	1.5nF 50V 0603
2834	4822 124 23002	10µF 20% 16V
2837	4822 126 13881	470pF 5% 50V
2838	4822 126 13881	470pF 5% 50V
2839	4822 126 13881	470pF 5% 50V
2840	4822 126 11669	27pF 5% 50V 0603
2842	2238 586 59812	100nF 20-80% 50V 0603
2843	4822 126 11669	27pF 5% 50V 0603
2844	3198 016 31020	1nF 10% 25V 0603
2845	4822 126 13883	220pF 5% 50V
2848	4822 126 11669	27pF 5% 50V 0603
2849	3198 016 31020	1nF 10% 25V 0603
2850	4822 126 11669	27pF 5% 50V 0603
2852	2238 586 59812	100nF 20-80% 50V 0603
2853	4822 126 11669	27pF 5% 50V 0603

2854	3198 016 31020	1nF 10% 25V 0603
2857	3198 016 31020	1nF 10% 25V 0603
2858	4822 126 11669	27pF 5% 50V 0603
2861	2238 586 59812	100nF 20-80% 50V 0603
2862	4822 126 11785	47pF 5% 50V 0603
2863	4822 126 14472	1µF 10% 10V 0805
2865	4822 126 11785	47pF 5% 50V 0603
2867	4822 126 13879	220nF 20% 16V
2868	4822 126 14472	1µF 10% 10V 0805
2869	4822 126 14247	1.5nF 50V 0603
2870	2238 586 59812	100nF 20-80% 50V 0603
2874	2238 586 59812	100nF 20-80% 50V 0603
2879	4822 126 11669	27pF 5% 50V 0603
2880	2238 586 59812	100nF 20-80% 50V 0603
2881	2238 586 59812	100nF 20-80% 50V 0603
2882	2238 586 59812	100nF 20-80% 50V 0603

–WW–

3007	4822 051 30103	10kΩ 5% 0.062W
3009	4822 051 30102	1kΩ 5% 0.062W
3016	4822 051 30101	100Ω 5% 0.062W
3018	4822 051 30101	100Ω 5% 0.062W
3019	4822 051 30103	10kΩ 5% 0.062W
3133	4822 051 30101	100Ω 5% 0.062W
3144	4822 051 30271	270Ω 5% 0.062W
3145	4822 051 30223	22kΩ 5% 0.062W
3146	4822 051 30561	560Ω 5% 0.062W
3150	4822 051 30271	270Ω 5% 0.062W
3151	4822 051 30223	22kΩ 5% 0.062W
3152	4822 051 30561	560Ω 5% 0.062W
3156	4822 051 30271	270Ω 5% 0.062W
3157	4822 051 30223	22kΩ 5% 0.062W
3158	4822 051 30561	560Ω 5% 0.062W
3162	4822 051 30101	100Ω 5% 0.062W
3164	4822 051 30471	470Ω 5% 0.062W
3166	4822 051 30101	100Ω 5% 0.062W
3170	4822 051 30101	100Ω 5% 0.062W
3171	4822 051 30101	100Ω 5% 0.062W
3172	4822 051 30101	100Ω 5% 0.062W
3200	4822 051 30101	100Ω 5% 0.062W
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 051 30101	100Ω 5% 0.062W
3205	4822 051 30101	100Ω 5% 0.062W
3206	4822 051 30102	1kΩ 5% 0.062W
3207	4822 051 30103	10kΩ 5% 0.062W
3208	4822 051 30332	3.3kΩ 5% 0.062W
3209	4822 051 30101	100Ω 5% 0.062W
3210	4822 051 30101	100Ω 5% 0.062W
3211	4822 051 30102	1kΩ 5% 0.062W
3212	4822 051 30102	1kΩ 5% 0.062W
3219	4822 117 12139	22Ω 5% 0.062W
3294	4822 051 30102	1kΩ 5% 0.062W
3295	4822 051 30103	10kΩ 5% 0.062W
3296	4822 051 30474	470kΩ 5% 0.062W
3300	4822 051 30153	15kΩ 5% 0.062W
3304	4822 051 30689	68Ω 5% 0.063W 0603
3305	4822 051 30472	4.7kΩ 5% 0.062W
3306	4822 051 30153	15kΩ 5% 0.062W
3307	4822 051 30472	4.7kΩ 5% 0.062W
3308	4822 051 30271	270Ω 5% 0.062W
3309	4822 051 30273	27kΩ 5% 0.062W
3310	4822 051 30102	1kΩ 5% 0.062W
3311	4822 051 30102	1kΩ 5% 0.062W
3312	4822 117 12903	1.8kΩ 1% 0.063W 0603
3313	4822 051 30103	10kΩ 5% 0.062W
3314	4822 117 12903	1.8kΩ 1% 0.063W 0603
3316	4822 051 30153	15kΩ 5% 0.062W
3317	4822 051 30472	4.7kΩ 5% 0.062W
3318	4822 051 30271	270Ω 5% 0.062W
3319	4822 051 30273	27kΩ 5% 0.062W
3320	4822 051 30102	1kΩ 5% 0.062W
3321	4822 051 30102	1kΩ 5% 0.062W
3322	4822 117 12903	1.8kΩ 1% 0.063W 0603
3323	4822 051 30103	10kΩ 5% 0.062W
3324	4822 117 12903	1.8kΩ 1% 0.063W 0603
3326	4822 051 30102	1kΩ 5% 0.062W
3327	4822 051 30103	10kΩ 5% 0.062W
3328	4822 051 30271	270Ω 5% 0.062W
3329	4822 051 30273	27kΩ 5% 0.062W
3330	4822 051 30102	1kΩ 5% 0.062W
3331	4822 051 30102	1kΩ 5% 0.062W
3332	4822 117 12903	1.8kΩ 1% 0.063W 0603
3333	4822 051 30103	10kΩ 5% 0.062W
3334	4822 117 12903	1.8kΩ 1% 0.063W 0603
3336	4822 051 30103	10kΩ 5% 0.062W
3337	4822 051 30103	10kΩ 5% 0.062W
3338	4822 051 30333	33kΩ 5% 0.062W
3339	4822 051 30103	10kΩ 5% 0.062W
3340	4822 051 30103	10kΩ 5% 0.062W
3344	4822 051 30472	4.7kΩ 5% 0.062W
3346	4822 051 30103	10kΩ 5% 0.062W
3348	4822 051 30474	470kΩ 5% 0.062W
3349	4822 051 30333	33kΩ 5% 0.062W
3350	4822 051 30101	100Ω 5% 0.062W
3351	4822 051 30689	68Ω 5% 0.063W 0603
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 051 30101	100Ω 5% 0.062W
3354	4822 051 30101	100Ω 5% 0.062W
3355	4822 051 30103	10kΩ 5% 0.062W
3359	4822 051 30689	68Ω 5% 0.063W 0603
3363	4822 051 30472	4.7kΩ 5% 0.062W
3370	4822 051 30474	470kΩ 5% 0.062W
3371	4822 051 30101	100Ω 5% 0.062W
3372	4822 051 30103	10kΩ 5% 0.062W
3373	4822 051 30222	2.2kΩ 5% 0.062W
3375	4822 117 13632	100kΩ 1% 0603 0.62W
3376	4822 051 30472	4.7kΩ 5% 0.062W
3377	4822 051 30101	100Ω 5% 0.062W
3379	4822 051 30222	2.2kΩ 5% 0.062W
3380	3198 031 11010	4 x 100Ω 5% 1206
3381	3198 031 11010	4 x 100Ω 5% 1206
3382	3198 031 11010	4 x 100Ω 5% 1206
3383	3198 031 11010	4 x 100Ω 5% 1206
3384	4822 051 30101	100Ω 5% 0.062W
3385	4822 051 30102	1kΩ 5% 0.062W
3386	4822 051 30222	2.2kΩ 5% 0.062W
3387	4822 051 30102	1kΩ 5% 0.062W
3388	4822 051 30102	1kΩ 5% 0.062W
3389	4822 051 30101	100Ω 5% 0.062W
3390	4822 051 30102	1kΩ 5% 0.062W
3391	4822 051 30333	33kΩ 5% 0.062W
3392	4822 051 30101	100Ω 5% 0.062W
3393	4822 051 30102	1kΩ 5% 0.062W
3394	4822 051 30222	2.2kΩ 5% 0.062W
3398	3198 031 11010	4 x 100Ω 5% 1206
3400	4822 051 30222	2.2kΩ 5% 0.062W
3402	3198 031 11010	4 x 100Ω 5% 1206
3404	3198 031 11010	4 x 100Ω 5% 1206
3405	4822 051 30332	3.3kΩ 5% 0.062W
3406	3198 031 11010	4 x 100Ω 5% 1206
3410	4822 051 30222	2.2kΩ 5% 0.062W
3411	4822 051 30332	3.3kΩ 5% 0.062W
3413	4822 051 30222	2.2kΩ 5% 0.062W
3414	4822 051 30472	4.7kΩ 5% 0.062W
3415	4822 051 30472	4.7kΩ 5% 0.062W
3418	4822 051 30102	1kΩ 5% 0.062W
3419	4822 051 30392	3.9kΩ 5% 0.063W 0603
3420	4822 051 30222	2.2kΩ 5% 0.062W
3421	4822 051 30102	1kΩ 5% 0.062W
3422	4822 051 30152	1.5kΩ 5% 0.062W
3424	4822 051 30332	3.3kΩ 5% 0.062W
3426	4822 051 30332	3.3kΩ 5% 0.062W
3428	4822 051 30101	100Ω 5% 0.062W
3429	4822 051 30101	100Ω 5% 0.062W
3430	4822 051 30472	4.7kΩ 5% 0.062W
3431	4822 051 30101	100Ω 5% 0.062W
3432	4822 051 30472	4.7kΩ 5% 0.062W
3433	4822 051 30101	100Ω 5% 0.062W
3435	4822 051 30273	27kΩ 5% 0.062W
3436	4822 117 12891	220kΩ 1% 0.063W 0603
3448	3198 031 11010	4 x 100Ω 5% 1206
3449	3198 031 11010	4 x 100Ω 5% 1206
3450	4822 051 30101	100Ω 5% 0.062W
3451	3198 031 11010	4 x 100Ω 5% 1206
3452	3198 031 11010	4 x 100Ω 5% 1206
3453	3198 031 11010	4 x 100Ω 5% 1206
3460	3198 031 11010	4 x 100Ω 5% 1206
3461	3198 031 11010	4 x 100Ω 5% 1206
3462	3198 031 11010	4 x 100Ω 5% 1206
3463	3198 031 11010	4 x 100Ω 5% 1206
3464	3198 031 11010	4 x 100Ω 5% 1206
3483	4822 051 30471	470Ω 5% 0.062W
3485	4822 051 30151	150Ω 5% 0.062W
3486	4822 051 30151	150Ω 5% 0.062W
3487	4822 051 30151	150Ω 5% 0.062W
3488	4822 051 30222	2.2kΩ 5% 0.062W
3489	4822 051 30222	2.2kΩ 5% 0.062W
3490	4822 051 30102	1kΩ 5% 0.062W
3494	3198 031 14710	4 x 470Ω 5% 1206
3496	4822 051 30103	10kΩ 5% 0.062W
3502	4822 051 30008	Jumper 0603
3506	4822 051 30332	3.3kΩ 5% 0.062W
3507	4822 051 30472	4.7kΩ 5% 0.062W
3510	4822 051 30102	1kΩ 5% 0.062W
3511	4822 051 30222	2.2kΩ 5% 0.062W
3512	4822 051 30562	5.6kΩ 5% 0.063W 0603
3513	4822 051 30332	3.3kΩ 5% 0.062W
3514	4822 051 30472	4.7kΩ 5% 0.062W
3515	4822 117 12925	47kΩ 1% 0.063W 0603
3516	4822 117 12925	47kΩ 1% 0.063W 0603
3517	4822 051 30102	1kΩ 5% 0.062W
3518	4822 117 13632	100kΩ 1% 0603 0.62W
3519	4822 051 30222	2.2kΩ 5% 0.062W
3520	4822 051 30222	2.2kΩ 5% 0.062W
3530	4822 051 30101	100Ω 5% 0.062W
3531	4822 051 30101	100Ω 5% 0.062W
3532	4822 051 30101	100Ω 5% 0.062W
3536	5322 117 13037	2.2kΩ 0.063W 0603
3540	4822 051 30101	100Ω 5% 0.062W
3541	4822 051 30101	100Ω 5% 0.062W
3545	4822 051 30008	Jumper 0603
3547	4822 051 30102	1kΩ 5% 0.062W
3548	4822 051 30102	1kΩ 5% 0.062W
3550	4822 051 30101	100Ω 5% 0.062W
3551	4822 051 30101	100Ω 5% 0.062W
3552	4822 051 30101	100Ω 5% 0.062W
3553	4822 051 30101	100Ω 5% 0.062W
3556	4822 051 30222	2.2kΩ 5% 0.062W
3557	4822 051 30101	100Ω 5% 0.062W
3558	4822 051 30101	100Ω 5% 0.062W
3559	4822 051 30101	100Ω 5% 0.062W
3560	4822 051 30101	100Ω 5% 0.062W
3562	4822 051 30103	10kΩ 5% 0.062W
3566	4822 051 30103	10kΩ 5% 0.062W
3567	4822 051 30103	10kΩ 5% 0.062W
3568	4822 051 30008	Jumper 0603
3570	4822 051 30332	3.3kΩ 5% 0.062W
3571	4822 051 30101	100Ω 5% 0.062W
3572	4822 051 30008	Jumper 0603
3575	4822 051 30102	1kΩ 5% 0.062W
3578	4822 051 30151	150Ω 5% 0.062W
3580	4822 051 30472	4.7kΩ 5% 0.062W
3581	4822 051 30101	100Ω 5% 0.062W
3582	4822 051 30101	100Ω 5% 0.062W
3583	4822 051 30472	4.7kΩ 5% 0.062W
3590	4822 051 30332	3.3kΩ 5% 0.062W
3591	4822 051 30332	3.3kΩ 5% 0.062W
3592	4822 051 30332	3.3kΩ 5% 0.062W
3593	4822 051 30332	3.3kΩ 5% 0.062W
3594	4822 051 30472	4.7kΩ 5% 0.062W
3600	4822 051 30332	3.3kΩ 5% 0.062W
3601	4822 051 30332	3.3kΩ 5% 0.062W
3602	4822 051 30101	100Ω 5% 0.062W
3603	4822 051 30101	100Ω 5% 0.062W
3604	4822 051 30101	100Ω 5% 0.062W
3605	4822 051 30101	100Ω 5% 0.062W
3606	4822 051 30101	100Ω 5% 0.062W
3607	4822 051 30101	100Ω 5% 0.062W
3608	4822 051 30101	100Ω 5% 0.062W
3609	4822 051 30101	100Ω 5% 0.062W
3610	4822 051 30479	47Ω 5% 0.062W
3611	4822 051 30101	100Ω 5% 0.062W
3615	4822 051 30101	100Ω 5% 0.062W
3620	4822 051 30103	10kΩ 5% 0.062W
3621	4822 051 30103	10kΩ 5% 0.062W
3622	4822 051 30479	47Ω 5% 0.062W
3623	4822 051 30102	1kΩ 5% 0.062W
3625	4822 051 30332	3.3kΩ 5% 0.062W
3626	4822 051 30332	3.3kΩ 5% 0.062W
3627	4822 051 30332	3.3kΩ 5% 0.062W
3628	4822 051 30101	100Ω 5% 0.062W
3630	4822 051 30102	1kΩ 5% 0.062W
3632	4822 051 30332	3.3kΩ 5% 0.062W
3633	4822 051 30472	4.7kΩ 5% 0.062W
3634	4822 051 30332	3.3kΩ 5% 0.062W
3636	4822 051 30332	3.3kΩ 5% 0.062W
3638	4822 051 30102	1kΩ 5% 0.062W
3640	4822 051 30222	2.2kΩ 5% 0.062W
3641	4822 051 30101	100Ω 5% 0.062W
3653	4822 051 30102	1kΩ 5% 0.062W
3654	4822 051 30102	1kΩ 5% 0.062W
3655	4822 051 30102	1kΩ 5% 0.062W
3657	4822 051 30103	10kΩ 5% 0.062W
3658	4822 051 30103	10kΩ 5% 0.062W
3661	4822 051 30101	100Ω 5% 0.062W
3662	4822 051 30101	100Ω 5% 0.062W
3663	4822 051 30101	100Ω 5% 0.062W
3664	4822 051 30101	100Ω 5% 0.062W
3665	4822 051 30101	100Ω 5% 0.062W
3667	4822 051 30101	100Ω 5% 0.062W
3668	4822 051 30101	100Ω 5% 0.062W
3673	4822 051 30103	10kΩ 5% 0.062W
3674	4822 051 30101	100Ω 5% 0.062W
3675	4822 051 30103	10kΩ 5% 0.062W
3676	4822 051 30101	100Ω 5% 0.062W
3677	4822 051 30101	100Ω 5% 0.062W
3679	4822 051 30101	100Ω 5% 0.062W
3681	4822 051 30332	3.3kΩ 5% 0.062W
3682	4822 051 30471	470Ω 5% 0.062W
3685	4822 051 30332	3.3kΩ 5% 0.062W
3686	4822 051 30471	470Ω 5% 0.062W
3710	4822 051 30333	33kΩ 5% 0.062W
3711	4822 051 30102	1kΩ 5% 0.062W
3713	4822 051 30101	100Ω 5% 0.062W
3714	4822 051 30223	22kΩ 5% 0.062W
3716	4822 051 30153	15kΩ 5% 0.062W
3720	4822 051 30333	33kΩ 5% 0.062W
3721	4822 051 30102	1kΩ 5% 0.062W
3723	4822 051 30101	100Ω 5% 0.062W
3724	4822 051 30223	22kΩ 5% 0.062W

3726	4822 051 30153	15kΩ 5% 0.062W
3730	4822 051 30333	33kΩ 5% 0.062W
3731	4822 051 30331	330Ω 5% 0.062W
3740	4822 051 30333	33kΩ 5% 0.062W
3741	4822 051 30331	330Ω 5% 0.062W
3796	4822 051 30472	4.7kΩ 5% 0.062W
3797	4822 051 30472	4.7kΩ 5% 0.062W
3798	4822 051 30333	33kΩ 5% 0.062W
3800	4822 051 30331	330Ω 5% 0.062W
3801	4822 051 30331	330Ω 5% 0.062W
3802	4822 051 30333	33kΩ 5% 0.062W
3803	4822 117 13632	100kΩ 1% 0603 0.62W
3804	4822 051 30333	33kΩ 5% 0.062W
3805	4822 117 13632	100kΩ 1% 0603 0.62W
3806	4822 117 13632	100kΩ 1% 0603 0.62W
3807	4822 117 13632	100kΩ 1% 0603 0.62W
3808	4822 117 13632	100kΩ 1% 0603 0.62W
3809	4822 051 30333	33kΩ 5% 0.062W
3810	4822 051 30472	4.7kΩ 5% 0.062W
3811	4822 051 30472	4.7kΩ 5% 0.062W
3812	4822 051 30101	100Ω 5% 0.062W
3813	4822 051 30101	100Ω 5% 0.062W
3815	4822 051 30101	100Ω 5% 0.062W
3816	4822 051 30101	100Ω 5% 0.062W
3820	4822 051 30333	33kΩ 5% 0.062W
3821	4822 051 30103	10kΩ 5% 0.062W
3822	4822 051 30333	33kΩ 5% 0.062W
3840	4822 051 30223	22kΩ 5% 0.062W
3841	4822 051 30223	22kΩ 5% 0.062W
3843	4822 051 30393	39kΩ 5% 0.062W
3844	4822 051 30101	100Ω 5% 0.062W
3845	4822 051 30101	100Ω 5% 0.062W
3846	4822 051 30223	22kΩ 5% 0.062W
3847	4822 051 30393	39kΩ 5% 0.062W
3848	4822 051 30393	39kΩ 5% 0.062W
3849	4822 051 30101	100Ω 5% 0.062W
3850	4822 051 30223	22kΩ 5% 0.062W
3851	4822 051 30223	22kΩ 5% 0.062W
3853	4822 051 30393	39kΩ 5% 0.062W
3854	4822 051 30101	100Ω 5% 0.062W
3855	4822 051 30101	100Ω 5% 0.062W
3856	4822 051 30223	22kΩ 5% 0.062W
3857	4822 051 30393	39kΩ 5% 0.062W
3858	4822 051 30393	39kΩ 5% 0.062W
3859	4822 051 30101	100Ω 5% 0.062W
3860	4822 117 12902	8.2kΩ 1% 0.063W 0603
3861	4822 051 30223	22kΩ 5% 0.062W
3862	4822 051 30273	27kΩ 5% 0.062W
3863	4822 117 12902	8.2kΩ 1% 0.063W 0603
3864	4822 051 30223	22kΩ 5% 0.062W
3865	4822 051 30273	27kΩ 5% 0.062W
3866	4822 051 30101	100Ω 5% 0.062W
3867	4822 051 30101	100Ω 5% 0.062W
3870	4822 051 30101	100Ω 5% 0.062W
3879	4822 117 12925	47kΩ 1% 0.063W 0603
3880	4822 051 30471	470Ω 5% 0.062W
3900	4822 051 30472	4.7kΩ 5% 0.062W
3901	4822 051 30333	33kΩ 5% 0.062W
3905	4822 051 30103	10kΩ 5% 0.062W
3906	4822 051 30103	10kΩ 5% 0.062W
3907	4822 051 30103	10kΩ 5% 0.062W
3908	4822 051 30103	10kΩ 5% 0.062W
3909	4822 051 30152	1.5kΩ 5% 0.062W
3910	4822 051 30102	1kΩ 5% 0.062W
3911	4822 117 12925	47kΩ 1% 0.063W 0603
3912	4822 051 30472	4.7kΩ 5% 0.062W
3913	4822 051 30101	100Ω 5% 0.062W
3917	4822 051 30472	4.7kΩ 5% 0.062W
3918	4822 051 30102	1kΩ 5% 0.062W
3919	4822 051 30102	1kΩ 5% 0.062W
3922	4822 051 30102	1kΩ 5% 0.062W
3923	4822 051 30472	4.7kΩ 5% 0.062W
3924	4822 051 30331	330Ω 5% 0.062W
3925	4822 051 30151	150Ω 5% 0.062W
3926	4822 051 30331	330Ω 5% 0.062W
3927	4822 051 30331	330Ω 5% 0.062W
3928	4822 051 30331	330Ω 5% 0.062W
4006	4822 051 30008	Jumper 0603
4007	4822 051 30008	Jumper 0603
4009	4822 051 30008	Jumper 0603
4010	4822 051 30008	Jumper 0603
4146	4822 051 30008	Jumper 0603
4152	4822 051 30008	Jumper 0603
4158	4822 051 30008	Jumper 0603
4201	4822 051 30008	Jumper 0603
4202	4822 051 30008	Jumper 0603
4203	4822 051 30008	Jumper 0603
4315	4822 051 30008	Jumper 0603
4325	4822 051 30008	Jumper 0603
4335	4822 051 30008	Jumper 0603
4385	4822 051 30008	Jumper 0603
4431	4822 051 30008	Jumper 0603
4572	4822 051 30008	Jumper 0603
4574	4822 051 30008	Jumper 0603
4582	4822 051 30008	Jumper 0603
4605	4822 051 30008	Jumper 0603
4659	4822 051 30008	Jumper 0603
4680	4822 051 30008	Jumper 0603
4684	4822 051 30008	Jumper 0603
4794	4822 051 30008	Jumper 0603
4797	4822 051 30008	Jumper 0603
4800	4822 051 30008	Jumper 0603
4801	4822 051 30008	Jumper 0603
4810	4822 051 30008	Jumper 0603
4811	4822 051 30008	Jumper 0603
4871	4822 051 30008	Jumper 0603
4874	4822 051 30008	Jumper 0603
4875	4822 051 30008	Jumper 0603
4884	4822 051 30008	Jumper 0603
4894	4822 051 30008	Jumper 0603

5140	2422 549 43062	Bead 600Ω at 100MHz
5162	2422 549 43062	Bead 600Ω at 100MHz
5164	2422 549 43062	Bead 600Ω at 100MHz
5196	2422 549 43062	Bead 600Ω at 100MHz
5197	2422 549 43769	Bead 30Ω at 100MHz
5198	2422 549 43062	Bead 600Ω at 100MHz
5199	2422 549 43062	Bead 600Ω at 100MHz
5300	2422 549 43062	Bead 600Ω at 100MHz
5302	2422 549 43062	Bead 600Ω at 100MHz
5352	2422 549 43769	Bead 30Ω at 100MHz
5520	2422 549 43062	Bead 600Ω at 100MHz
5521	2422 549 43062	Bead 600Ω at 100MHz
5522	2422 549 43062	Bead 600Ω at 100MHz
5523	2422 549 43062	Bead 600Ω at 100MHz
5524	2422 549 43062	Bead 600Ω at 100MHz
5530	2422 549 43769	Bead 30Ω at 100MHz
5541	2422 549 43062	Bead 600Ω at 100MHz
5570	3198 018 51090	10µH 10% 0603
5572	2422 549 43769	Bead 30Ω at 100MHz
5574	2422 549 43062	Bead 600Ω at 100MHz
5628	2422 549 43062	Bead 600Ω at 100MHz
5630	2422 549 43062	Bead 600Ω at 100MHz
5642	2422 549 43062	Bead 600Ω at 100MHz
5643	2422 549 43062	Bead 600Ω at 100MHz
5644	2422 549 43062	Bead 600Ω at 100MHz
5645	2422 549 43062	Bead 600Ω at 100MHz
5646	2422 549 43062	Bead 600Ω at 100MHz
5647	2422 549 43062	Bead 600Ω at 100MHz
5648	2422 549 43062	Bead 600Ω at 100MHz
5649	2422 549 43062	Bead 600Ω at 100MHz
5670	2422 549 43062	Bead 600Ω at 100MHz
5672	2422 549 43062	Bead 600Ω at 100MHz
5673	2422 549 43062	Bead 600Ω at 100MHz
5796	2422 549 43062	Bead 600Ω at 100MHz
5810	2422 549 43062	Bead 600Ω at 100MHz
5820	2422 549 43062	Bead 600Ω at 100MHz
5822	2422 549 43769	Bead 30Ω at 100MHz
5834	2422 549 43769	Bead 30Ω at 100MHz
5870	2422 549 43769	Bead 30Ω at 100MHz

6007	9322 149 96685	BZX384-C2V4
6019	9322 149 96685	BZX384-C2V4
6166	9322 149 96685	BZX384-C2V4
6302	4822 130 10654	BAT254
6310	4822 130 10654	BAT254
6311	4822 130 10654	BAT254
6315	9340 548 71115	SM PDZ33B
6316	9340 548 71115	SM PDZ33B
6317	9340 548 71115	SM PDZ33B
6318	9340 548 71115	SM PDZ33B
6319	9340 548 71115	SM PDZ33B
6320	9340 548 71115	SM PDZ33B
6321	9340 548 71115	SM PDZ33B
6322	9340 548 71115	SM PDZ33B
6323	9340 548 71115	SM PDZ33B
6324	9340 548 71115	SM PDZ33B
6354	9340 548 71115	SM PDZ33B
6355	9340 548 71115	SM PDZ33B
6356	9340 548 71115	SM PDZ33B
6357	9340 548 71115	SM PDZ33B
6378	4822 130 83757	BAS216
6380	4822 130 10654	BAT254
6381	4822 130 10654	BAT254
6388	4822 130 11422	PLVA2650A
6393	4822 130 11422	PLVA2650A
6399	4822 130 11422	PLVA2650A
6503	9322 149 96685	BZX384-C2V4
6507	4822 130 10654	BAT254
6508	4822 130 10654	BAT254
6509	4822 130 10654	BAT254
6551	4822 130 10328	BAV99W
6552	4822 130 10328	BAV99W
6553	4822 130 10328	BAV99W
6554	4822 130 10328	BAV99W
6555	4822 130 10328	BAV99W
6630	4822 130 10654	BAT254
6710	9340 548 71115	SM PDZ33B
6711	9340 548 71115	SM PDZ33B
6720	9340 548 71115	SM PDZ33B
6721	9340 548 71115	SM PDZ33B
6730	9340 548 71115	SM PDZ33B
6731	9340 548 71115	SM PDZ33B
6740	9340 548 71115	SM PDZ33B
6741	9340 548 71115	SM PDZ33B
6802	9340 260 20115	BAW56W
6805	9340 260 20115	BAW56W
6807	9340 260 20115	BAW56W
6820	4822 130 10654	BAT254
6821	4822 130 11422	PLVA2650A

7145	3198 010 42310	BC847BW
7151	3198 010 42310	BC847BW
7157	3198 010 42310	BC847BW
7165	3198 010 42310	BC847BW
7170	9322 160 96671	AD9887KS-140
7175	4822 209 17398	LD1117DT33
7303	4822 209 30212	PC74HCT125T
7308	3198 010 42310	BC847BW
7310	3198 010 42310	BC847BW
7311	9322 145 66668	TSH93ID
7315	3198 010 42310	BC847BW
7316	3198 010 42310	BC847BW
7318	3198 010 42310	BC847BW
7320	3198 010 42310	BC847BW
7321	3198 010 42310	BC847BW
7322	3198 010 42310	BC847BW
7323	3198 010 42310	BC847BW
7325	3198 010 42310	BC847BW
7326	3198 010 42310	BC847BW
7328	3198 010 42310	BC847BW
7340	9337 153 10118	74HCT4052D
7352	9322 160 17668	ST202ECD
7370	4822 209 71585	74HCT4538N
7383	9352 684 81557	SAA5801H/015
7405	3198 010 42310	BC847BW
7406	3198 010 42310	BC847BW
7430	9322 156 81668	M24C32-WMN6TNKSA
7500	9322 157 20668	MSM51V18165F-60J
7510	9352 499 60118	74LVC00AD
7515	3198 010 42310	BC847BW
7516	3198 010 42320	BC857BW
7517	9322 158 67685	ADM810TART
7530	4822 209 90188	PCF8591T
7540	5322 209 33172	PCF8574AT
7550	5322 209 11598	PC74HCT4538T
7555	5322 209 11598	PC74HCT4538T
7563	3198 010 42310	BC847BW
7570	9322 137 99668	FS6377-01
7571	5322 209 11598	PC74HCT4538T
7574	9352 317 00118	74LVC125AD
7580	9322 156 81668	M24C32-WMN6TNKSA
7605	9322 158 73671	PW164-10R
7628	9322 164 75682	CY62126BVLL-70ZI
7640	4822 209 16406	TL431ACD
7641	9322 157 95668	STD16NE06L
7655	9322 141 53682	EPC2LC20
7670	9322 159 45668	DS90C385MTD
7675	9340 560 36235	BSH111
7676	9340 560 36235	BSH111
7714	4822 209 30095	LM833D
7801	3198 010 42310	BC847BW
7802	3198 010 42310	BC847BW
7803	3198 010 42320	BC857BW
7805	9340 547 13215	BSH103
7806	9340 547 13215	BSH103
7807	9340 547 13215	BSH103
7808	9340 547 13215	BSH103
7812	9322 167 63668	MSP3415G-QG-B8
7841	4822 209 30095	LM833D
7851	4822 209 30095	LM833D
7861	9322 173 77668	TS462CD
7870	9322 167 76668	TC74HC590AF
7874	9322 167 76668	TC74HC590AF
7879	3198 010 42310	BC847BW
7880	9322 153 66668	CY7C199-15ZC
7881	9351 869 80118	74HCT573DB
7882	9351 869 80118	74HCT573DB

VGA Connector Panel [VGA]

Various

0301	2422 025 17136	Connector 20P m
0305	2422 025 16705	Connector 12P m
0315	2422 025 16542	Connector 2P M
0318	2422 025 17183	Connector 32P f
0318	2422 025 17233	Connector 32P f
0319	2422 025 17047	Connector 13P m
0320	2422 025 16545	Connector 10P m
0371	2422 025 17027	Connector 15P F
0371	4822 267 51477	Socket 15P f
0372	2422 025 17027	Connector 15P F
0372	4822 267 51477	Socket 15P f
0374	2422 026 05276	Socket 1P f Orange
0382	2422 025 17253	Connector 10P m
0382	2422 025 17274	Connector 10P m
0385	2422 025 17253	Connector 10P m
0385	2422 025 17274	Connector 10P m
0388	2422 025 16703	Connector 7P m
0604	3122 357 00301	Software (check Prod.Surv.)
0605	3122 357 00311	Software (check Prod.Surv.)
1100	2422 086 11009	Fuse T1.A 63V 2410
1170	2422 086 11031	Fuse SMD 500mA 63V
1415	2422 543 89022	Xtal 6MHz 20pF CX5F
1570	2422 543 01115	Crystal 24.576MHz
1575	2422 086 11031	Fuse SMD 500mA 63V
1670	2422 086 11031	Fuse SMD 500mA 63V

⊣⊢

2007	4822 126 14305	100nF 10% 16V 0603
2009	4822 126 14305	100nF 10% 16V 0603
2061	4822 126 14305	100nF 10% 16V 0603
2066	4822 126 14305	100nF 10% 16V 0603
2090	4822 126 14305	100nF 10% 16V 0603
2097	3198 016 31080	1pF 25% 50V 0603
2103	3198 016 31080	1pF 25% 50V 0603
2142	4822 126 14305	100nF 10% 16V 0603
2144	5322 124 41945	22µF 20% 35V
2146	3198 017 34730	47nF 16V 0603
2147	5322 124 41945	22µF 20% 35V
2150	5322 124 41945	22µF 20% 35V
2151	3198 017 34730	47nF 16V 0603
2152	3198 017 34730	47nF 16V 0603
2153	5322 124 41945	22µF 20% 35V
2156	5322 124 41945	22µF 20% 35V
2158	3198 017 34730	47nF 16V 0603
2159	5322 124 41945	22µF 20% 35V
2164	4822 124 12095	100µF 20% 16V
2165	4822 126 14305	100nF 10% 16V 0603
2166	4822 126 14305	100nF 10% 16V 0603
2167	4822 124 12095	100µF 20% 16V
2170	4822 126 14305	100nF 10% 16V 0603
2171	4822 126 14305	100nF 10% 16V 0603
2172	4822 126 14305	100nF 10% 16V 0603
2173	4822 126 14305	100nF 10% 16V 0603
2174	4822 126 14305	100nF 10% 16V 0603
2175	4822 126 14305	100nF 10% 16V 0603
2176	4822 126 14305	100nF 10% 16V 0603
2177	4822 126 14305	100nF 10% 16V 0603
2178	4822 126 14305	100nF 10% 16V 0603
2179	4822 126 14305	100nF 10% 16V 0603
2180	4822 126 14305	100nF 10% 16V 0603
2181	4822 126 14305	100nF 10% 16V 0603
2182	4822 126 14305	100nF 10% 16V 0603
2183	4822 126 14305	100nF 10% 16V 0603
2184	4822 126 14305	100nF 10% 16V 0603
2185	4822 126 14305	100nF 10% 16V 0603
2186	4822 126 14305	100nF 10% 16V 0603
2187	4822 126 14305	100nF 10% 16V 0603
2188	4822 126 14305	100nF 10% 16V 0603
2189	4822 126 14305	100nF 10% 16V 0603
2190	4822 126 14305	100nF 10% 16V 0603
2191	4822 126 14305	100nF 10% 16V 0603
2192	4822 126 14305	100nF 10% 16V 0603
2193	4822 126 14305	100nF 10% 16V 0603
2195	4822 124 23002	10µF 20% 16V
2196	4822 124 23002	10µF 20% 16V
2197	4822 124 23002	10µF 20% 16V
2198	4822 124 23002	10µF 20% 16V
2199	4822 124 23002	10µF 20% 16V
2205	4822 126 14305	100nF 10% 16V 0603
2206	4822 126 14305	100nF 10% 16V 0603
2207	4822 126 14305	100nF 10% 16V 0603
2208	4822 126 14127	39nF 10% 50V 0805
2210	5322 126 11581	3.9nF 10% 63V 0603
2212	4822 126 14305	100nF 10% 16V 0603
2300	4822 124 12095	100µF 20% 16V
2301	4822 126 14305	100nF 10% 16V 0603
2302	4822 124 23002	10µF 20% 16V
2304	4822 126 14305	100nF 10% 16V 0603
2308	5322 124 41945	22µF 20% 35V
2310	4822 126 14305	100nF 10% 16V 0603
2311	4822 126 14305	100nF 10% 16V 0603
2318	5322 124 41945	22µF 20% 35V
2328	5322 124 41945	22µF 20% 35V
2340	4822 126 14305	100nF 10% 16V 0603
2351	4822 126 14305	100nF 10% 16V 0603
2352	4822 126 14305	100nF 10% 16V 0603
2353	4822 124 23002	10µF 20% 16V
2354	4822 126 14305	100nF 10% 16V 0603
2355	4822 126 14305	100nF 10% 16V 0603
2356	4822 126 14305	100nF 10% 16V 0603
2365	4822 126 14305	100nF 10% 16V 0603
2370	4822 126 14305	100nF 10% 16V 0603
2372	4822 126 14305	100nF 10% 16V 0603
2375	4822 126 14305	100nF 10% 16V 0603
2376	4822 126 14305	100nF 10% 16V 0603
2381	4822 126 14305	100nF 10% 16V 0603
2382	4822 126 14305	100nF 10% 16V 0603
2383	4822 126 14305	100nF 10% 16V 0603
2415	2238 867 75339	33pF 5% 50V 0603
2416	4822 126 11669	27pF 5% 50V 0603
2420	4822 126 14305	100nF 10% 16V 0603
2432	4822 126 14305	100nF 10% 16V 0603
2433	4822 126 14305	100nF 10% 16V 0603
2434	4822 126 14305	100nF 10% 16V 0603
2435	4822 126 14305	100nF 10% 16V 0603
2436	4822 126 14305	100nF 10% 16V 0603
2437	4822 126 14305	100nF 10% 16V 0603
2438	4822 126 13879	220nF 20% 16V
2439	4822 126 13879	220nF 20% 16V
2446	4822 126 14305	100nF 10% 16V 0603
2447	4822 126 14305	100nF 10% 16V 0603
2448	4822 126 14305	100nF 10% 16V 0603
2499	4822 126 14305	100nF 10% 16V 0603
2500	4822 126 14305	100nF 10% 16V 0603
2501	4822 126 14226	82pF 5% 50V 0603
2502	4822 126 14226	82pF 5% 50V 0603
2503	4822 126 14226	82pF 5% 50V 0603
2504	4822 126 14226	82pF 5% 50V 0603
2505	4822 126 14226	82pF 5% 50V 0603
2506	4822 126 14305	100nF 10% 16V 0603
2511	4822 126 14305	100nF 10% 16V 0603
2513	4822 126 14305	100nF 10% 16V 0603
2515	4822 126 14305	100nF 10% 16V 0603
2520	4822 124 23002	10µF 20% 16V
2521	4822 124 23002	10µF 20% 16V
2522	4822 124 23002	10µF 20% 16V
2523	4822 124 23002	10µF 20% 16V
2524	4822 124 23002	10µF 20% 16V
2530	5322 124 41945	22µF 20% 35V
2531	4822 126 14305	100nF 10% 16V 0603
2533	4822 126 14305	100nF 10% 16V 0603
2534	4822 126 14305	100nF 10% 16V 0603
2535	4822 126 14305	100nF 10% 16V 0603
2537	3198 016 31020	1nF 10% 25V 0603
2538	3198 016 31020	1nF 10% 25V 0603
2541	4822 126 14305	100nF 10% 16V 0603
2545	3198 016 31020	1nF 10% 25V 0603
2546	3198 016 31020	1nF 10% 25V 0603
2547	3198 016 31020	1nF 10% 25V 0603
2548	3198 016 31020	1nF 10% 25V 0603
2550	3198 016 31020	1nF 10% 25V 0603
2551	3198 016 31020	1nF 10% 25V 0603
2552	3198 016 31020	1nF 10% 25V 0603
2553	3198 016 31020	1nF 10% 25V 0603
2557	3198 016 31020	1nF 10% 25V 0603
2558	3198 016 31020	1nF 10% 25V 0603
2559	3198 016 31020	1nF 10% 25V 0603
2560	3198 016 31020	1nF 10% 25V 0603
2562	3198 016 31020	1nF 10% 25V 0603
2563	3198 016 31020	1nF 10% 25V 0603
2564	3198 016 31020	1nF 10% 25V 0603
2565	3198 016 31020	1nF 10% 25V 0603
2566	3198 016 31020	1nF 10% 25V 0603
2570	3198 016 31020	1nF 10% 25V 0603
2572	4822 126 14305	100nF 10% 16V 0603
2573	4822 124 23002	10µF 20% 16V
2574	4822 126 14305	100nF 10% 16V 0603
2583	4822 126 14305	100nF 10% 16V 0603
2600	4822 126 14305	100nF 10% 16V 0603
2601	4822 126 14305	100nF 10% 16V 0603
2602	4822 126 14305	100nF 10% 16V 0603
2603	4822 126 14305	100nF 10% 16V 0603
2604	4822 126 14305	100nF 10% 16V 0603
2605	4822 126 14305	100nF 10% 16V 0603
2606	4822 126 14305	100nF 10% 16V 0603
2607	4822 126 14305	100nF 10% 16V 0603
2608	4822 126 14305	100nF 10% 16V 0603
2609	4822 126 14305	100nF 10% 16V 0603
2610	4822 126 14305	100nF 10% 16V 0603
2611	4822 126 14305	100nF 10% 16V 0603
2612	4822 126 14305	100nF 10% 16V 0603
2613	4822 126 14305	100nF 10% 16V 0603
2614	4822 126 14305	100nF 10% 16V 0603
2615	4822 126 14305	100nF 10% 16V 0603
2616	4822 126 14305	100nF 10% 16V 0603
2617	4822 126 14305	100nF 10% 16V 0603
2618	4822 126 14305	100nF 10% 16V 0603
2619	4822 126 14305	100nF 10% 16V 0603
2620	4822 126 14305	100nF 10% 16V 0603
2621	4822 126 14305	100nF 10% 16V 0603
2622	4822 126 14305	100nF 10% 16V 0603
2623	4822 126 14305	100nF 10% 16V 0603
2624	4822 126 14305	100nF 10% 16V 0603
2625	4822 126 14305	100nF 10% 16V 0603
2628	4822 126 14305	100nF 10% 16V 0603
2629	4822 122 33741	10pF 10% 50V
2630	4822 126 14305	100nF 10% 16V 0603
2640	4822 126 14305	100nF 10% 16V 0603
2641	3198 016 31020	1nF 10% 25V 0603
2642	4822 124 23002	10µF 20% 16V
2643	4822 124 23002	10µF 20% 16V
2644	4822 124 23002	10µF 20% 16V
2645	4822 124 23002	10µF 20% 16V
2646	4822 124 23002	10µF 20% 16V
2647	4822 124 23002	10µF 20% 16V
2648	4822 124 23002	10µF 20% 16V
2649	4822 124 23002	10µF 20% 16V
2655	4822 126 14305	100nF 10% 16V 0603
2656	4822 126 14305	100nF 10% 16V 0603
2657	4822 126 14305	100nF 10% 16V 0603
2658	4822 126 14305	100nF 10% 16V 0603
2659	4822 126 14305	100nF 10% 16V 0603
2660	4822 126 14305	100nF 10% 16V 0603
2661	4822 126 14305	100nF 10% 16V 0603
2662	4822 126 14305	100nF 10% 16V 0603
2663	4822 126 14305	100nF 10% 16V 0603
2670	4822 126 14305	100nF 10% 16V 0603
2671	4822 126 14305	100nF 10% 16V 0603
2672	4822 126 14305	100nF 10% 16V 0603
2673	4822 126 14305	100nF 10% 16V 0603
2694	3198 016 31080	1pF 25% 50V 0603
2695	3198 016 31080	1pF 25% 50V 0603
2696	3198 016 31080	1pF 25% 50V 0603
2697	3198 016 31080	1pF 25% 50V 0603
2698	3198 016 31080	1pF 25% 50V 0603
2699	3198 016 31080	1pF 25% 50V 0603
2711	4822 122 31765	100pF 2% 63V
2712	4822 126 14472	1µF 10% 10V 0805
2715	4822 126 14305	100nF 10% 16V 0603
2716	4822 122 33777	47pF 5% 63V
2717	4822 126 14472	1µF 10% 10V 0805
2721	4822 122 31765	100pF 2% 63V
2722	4822 126 14472	1µF 10% 10V 0805
2726	4822 122 33777	47pF 5% 63V
2727	4822 126 14472	1µF 10% 10V 0805
2731	4822 122 31765	100pF 2% 63V
2741	4822 122 31765	100pF 2% 63V
2799	5322 124 41945	22µF 20% 35V
2800	4822 124 12095	100µF 20% 16V
2802	4822 124 23002	10µF 20% 16V
2803	4822 124 23002	10µF 20% 16V
2804	3198 016 31020	1nF 10% 25V 0603
2810	4822 124 12095	100µF 20% 16V
2811	3198 016 31020	1nF 10% 25V 0603
2812	3198 016 31020	1nF 10% 25V 0603
2813	3198 016 31020	1nF 10% 25V 0603
2814	4822 126 14585	100nF 10% 50V
2815	3198 016 31020	1nF 10% 25V 0603
2816	4822 124 23002	10µF 20% 16V
2817	4822 126 14305	100nF 10% 16V 0603
2818	3198 016 31020	1nF 10% 25V 0603
2819	3198 016 31020	1nF 10% 25V 0603
2820	4822 124 23002	10µF 20% 16V
2821	4822 124 23002	10µF 20% 16V
2822	4822 126 14247	1.5nF 50V 0603
2823	4822 124 23002	10µF 20% 16V
2824	4822 126 14247	1.5nF 50V 0603
2825	3198 016 31020	1nF 10% 25V 0603
2826	4822 126 14472	1µF 10% 10V 0805
2827	4822 126 14472	1µF 10% 10V 0805
2828	3198 016 31020	1nF 10% 25V 0603
2829	4822 124 23002	10µF 20% 16V
2830	4822 126 14305	100nF 10% 16V 0603
2833	4822 126 14247	1.5nF 50V 0603
2834	4822 124 23002	10µF 20% 16V
2837	4822 126 13881	470pF 5% 50V
2838	4822 126 13881	470pF 5% 50V
2839	4822 126 13881	470pF 5% 50V
2840	4822 126 11669	27pF 5% 50V 0603
2842	4822 126 14305	100nF 10% 16V 0603
2843	4822 126 11669	27pF 5% 50V 0603
2844	3198 016 31020	1nF 10% 25V 0603

2845	4822 126 13883	220pF 5% 50V
2848	4822 126 11669	27pF 5% 50V 0603
2849	3198 016 31020	1nF 10% 25V 0603
2850	4822 126 11669	27pF 5% 50V 0603
2852	4822 126 14305	100nF 10% 16V 0603
2853	4822 126 11669	27pF 5% 50V 0603
2854	3198 016 31020	1nF 10% 25V 0603
2857	3198 016 31020	1nF 10% 25V 0603
2858	4822 126 11669	27pF 5% 50V 0603
2861	4822 126 14305	100nF 10% 16V 0603
2862	4822 122 33777	47pF 5% 63V
2863	4822 126 14472	1µF 10% 10V 0805
2865	4822 122 33777	47pF 5% 63V
2867	3198 016 31020	1nF 10% 25V 0603
2868	4822 126 14472	1µF 10% 10V 0805
2870	4822 126 14305	100nF 10% 16V 0603
2874	4822 126 14305	100nF 10% 16V 0603
2879	4822 126 11669	27pF 5% 50V 0603
2880	4822 126 14305	100nF 10% 16V 0603
2881	4822 126 14305	100nF 10% 16V 0603
2882	4822 126 14305	100nF 10% 16V 0603
2901	2238 586 59812	100nF 20-80% 50V 0603
2901	4822 126 14305	100nF 10% 16V 0603
2902	2238 586 59812	100nF 20-80% 50V 0603
2902	4822 126 14305	100nF 10% 16V 0603
2909	2238 586 59812	100nF 20-80% 50V 0603
2909	4822 126 14305	100nF 10% 16V 0603
2910	2238 586 59812	100nF 20-80% 50V 0603
2910	4822 126 14305	100nF 10% 16V 0603
2925	2020 552 94427	100pF 5% 50v 0603

–WW–

3060	4822 051 30103	10kΩ 5% 0.062W
3061	4822 051 30472	4.7kΩ 5% 0.062W
3065	4822 051 30103	10kΩ 5% 0.062W
3066	4822 051 30472	4.7kΩ 5% 0.062W
3144	4822 051 30271	270Ω 5% 0.062W
3145	4822 051 30223	22kΩ 5% 0.062W
3146	4822 051 30561	560Ω 5% 0.062W
3147	4822 051 30271	270Ω 5% 0.062W
3148	4822 051 30223	22kΩ 5% 0.062W
3149	4822 051 30561	560Ω 5% 0.062W
3150	4822 051 30271	270Ω 5% 0.062W
3151	4822 051 30223	22kΩ 5% 0.062W
3152	4822 051 30561	560Ω 5% 0.062W
3153	4822 051 30271	270Ω 5% 0.062W
3154	4822 051 30223	22kΩ 5% 0.062W
3155	4822 051 30561	560Ω 5% 0.062W
3156	4822 051 30271	270Ω 5% 0.062W
3157	4822 051 30223	22kΩ 5% 0.062W
3158	4822 051 30561	560Ω 5% 0.062W
3159	4822 051 30271	270Ω 5% 0.062W
3160	4822 051 30223	22kΩ 5% 0.062W
3161	4822 051 30561	560Ω 5% 0.062W
3164	4822 051 30471	470Ω 5% 0.062W
3200	4822 051 30101	100Ω 5% 0.062W
3201	4822 051 30008	Jumper 0603
3203	4822 051 30101	100Ω 5% 0.062W
3204	4822 051 30101	100Ω 5% 0.062W
3205	4822 051 30101	100Ω 5% 0.062W
3206	4822 051 30102	1kΩ 5% 0.062W
3207	4822 051 30103	10kΩ 5% 0.062W
3208	4822 051 30332	3.3kΩ 5% 0.062W
3209	4822 051 30101	100Ω 5% 0.062W
3210	4822 051 30101	100Ω 5% 0.062W
3211	4822 051 30102	1kΩ 5% 0.062W
3212	4822 051 30102	1kΩ 5% 0.062W
3294	4822 051 30333	33kΩ 5% 0.062W
3295	4822 051 30102	1kΩ 5% 0.062W
3296	4822 051 30474	470kΩ 5% 0.062W
3300	4822 051 30153	15kΩ 5% 0.062W
3304	4822 051 30689	68Ω 5% 0.063W 0603
3305	4822 051 30472	4.7kΩ 5% 0.062W
3306	4822 051 30153	15kΩ 5% 0.062W
3307	4822 051 30472	4.7kΩ 5% 0.062W
3308	4822 051 30271	270Ω 5% 0.062W
3309	4822 051 30273	27kΩ 5% 0.062W
3310	4822 051 30102	1kΩ 5% 0.062W
3311	4822 051 30102	1kΩ 5% 0.062W
3312	4822 117 12903	1.8kΩ 1% 0.063W 0603
3313	4822 051 30103	10kΩ 5% 0.062W
3314	4822 117 12903	1.8kΩ 1% 0.063W 0603
3316	4822 051 30153	15kΩ 5% 0.062W
3317	4822 051 30472	4.7kΩ 5% 0.062W
3318	4822 051 30271	270Ω 5% 0.062W
3319	4822 051 30273	27kΩ 5% 0.062W
3320	4822 051 30102	1kΩ 5% 0.062W
3321	4822 051 30102	1kΩ 5% 0.062W
3322	4822 117 12903	1.8kΩ 1% 0.063W 0603
3323	4822 051 30103	10kΩ 5% 0.062W
3324	4822 117 12903	1.8kΩ 1% 0.063W 0603
3326	4822 051 30333	33kΩ 5% 0.062W
3327	4822 051 30102	1kΩ 5% 0.062W
3328	4822 051 30271	270Ω 5% 0.062W
3329	4822 051 30273	27kΩ 5% 0.062W
3330	4822 051 30102	1kΩ 5% 0.062W
3331	4822 051 30102	1kΩ 5% 0.062W
3332	4822 117 12903	1.8kΩ 1% 0.063W 0603
3333	4822 051 30103	10kΩ 5% 0.062W
3334	4822 117 12903	1.8kΩ 1% 0.063W 0603
3336	4822 051 30103	10kΩ 5% 0.062W
3337	4822 051 30103	10kΩ 5% 0.062W
3338	4822 051 30333	33kΩ 5% 0.062W
3339	4822 051 30103	10kΩ 5% 0.062W
3340	4822 051 30103	10kΩ 5% 0.062W
3341	4822 051 30333	33kΩ 5% 0.062W
3342	4822 051 30102	1kΩ 5% 0.062W
3343	4822 051 30333	33kΩ 5% 0.062W
3344	4822 051 30472	4.7kΩ 5% 0.062W
3345	4822 051 30101	100Ω 5% 0.062W
3346	4822 051 30103	10kΩ 5% 0.062W
3347	4822 051 30101	100Ω 5% 0.062W
3348	4822 117 13632	100kΩ 1% 0603 0.62W
3349	4822 051 30103	10kΩ 5% 0.062W
3350	4822 051 30101	100Ω 5% 0.062W
3351	4822 051 30689	68Ω 5% 0.063W 0603
3352	4822 051 30103	10kΩ 5% 0.062W
3353	4822 051 30101	100Ω 5% 0.062W
3354	4822 051 30101	100Ω 5% 0.062W
3355	4822 051 30103	10kΩ 5% 0.062W
3359	4822 051 30689	68Ω 5% 0.063W 0603
3360	4822 051 30103	10kΩ 5% 0.062W
3361	4822 051 30472	4.7kΩ 5% 0.062W
3362	4822 051 30103	10kΩ 5% 0.062W
3363	4822 051 30472	4.7kΩ 5% 0.062W
3364	4822 051 30103	10kΩ 5% 0.062W
3365	4822 051 30474	470kΩ 5% 0.062W
3366	4822 117 12925	47kΩ 1% 0.063W 0603
3370	4822 051 30682	6.8kΩ 5% 0.062W
3371	4822 051 30101	100Ω 5% 0.062W
3372	4822 051 30103	10kΩ 5% 0.062W
3373	4822 051 30222	2.2kΩ 5% 0.062W
3374	4822 051 30102	1kΩ 5% 0.062W
3375	4822 117 13632	100kΩ 1% 0603 0.62W
3376	4822 051 30472	4.7kΩ 5% 0.062W
3377	4822 051 30101	100Ω 5% 0.062W
3378	4822 051 30102	1kΩ 5% 0.062W
3379	4822 051 30222	2.2kΩ 5% 0.062W
3380	3198 031 11010	4 x 100Ω 5% 1206
3381	3198 031 11010	4 x 100Ω 5% 1206
3382	3198 031 11010	4 x 100Ω 5% 1206
3383	3198 031 11010	4 x 100Ω 5% 1206
3384	4822 051 30101	100Ω 5% 0.062W
3385	4822 051 30102	1kΩ 5% 0.062W
3386	4822 051 30222	2.2kΩ 5% 0.062W
3388	4822 051 30102	1kΩ 5% 0.062W
3390	4822 051 30102	1kΩ 5% 0.062W
3391	4822 051 30333	33kΩ 5% 0.062W
3392	4822 051 30101	100Ω 5% 0.062W
3393	4822 051 30102	1kΩ 5% 0.062W
3394	3198 031 11010	4 x 100Ω 5% 1206
3398	3198 031 11010	4 x 100Ω 5% 1206
3400	4822 051 30102	1kΩ 5% 0.062W
3402	3198 031 11010	4 x 100Ω 5% 1206
3404	3198 031 11010	4 x 100Ω 5% 1206
3406	3198 031 11010	4 x 100Ω 5% 1206
3410	4822 051 30222	2.2kΩ 5% 0.062W
3411	4822 051 30332	3.3kΩ 5% 0.062W
3413	4822 051 30222	2.2kΩ 5% 0.062W
3414	4822 051 30222	2.2kΩ 5% 0.062W
3415	4822 051 30222	2.2kΩ 5% 0.062W
3417	4822 051 30221	220Ω 5% 0.062W
3418	4822 051 30102	1kΩ 5% 0.062W
3419	4822 051 30392	3.9kΩ 5% 0.063W 0603
3420	4822 051 30222	2.2kΩ 5% 0.062W
3421	4822 051 30102	1kΩ 5% 0.062W
3422	4822 051 30152	1.5kΩ 5% 0.062W
3423	4822 117 12925	47kΩ 1% 0.063W 0603
3424	4822 051 30332	3.3kΩ 5% 0.062W
3426	4822 051 30332	3.3kΩ 5% 0.062W
3428	4822 051 30101	100Ω 5% 0.062W
3429	4822 051 30101	100Ω 5% 0.062W
3430	4822 051 30472	4.7kΩ 5% 0.062W
3431	4822 051 30101	100Ω 5% 0.062W
3432	4822 051 30472	4.7kΩ 5% 0.062W
3433	4822 051 30101	100Ω 5% 0.062W
3435	4822 051 30273	27kΩ 5% 0.062W
3436	4822 117 12891	220kΩ 1% 0.063W 0603
3448	3198 031 11010	4 x 100Ω 5% 1206
3449	3198 031 11010	4 x 100Ω 5% 1206
3450	4822 051 30101	100Ω 5% 0.062W
3451	3198 031 11010	4 x 100Ω 5% 1206
3452	3198 031 11010	4 x 100Ω 5% 1206
3453	3198 031 11010	4 x 100Ω 5% 1206
3460	3198 031 11010	4 x 100Ω 5% 1206
3461	3198 031 11010	4 x 100Ω 5% 1206
3462	3198 031 11010	4 x 100Ω 5% 1206
3463	3198 031 11010	4 x 100Ω 5% 1206
3464	3198 031 11010	4 x 100Ω 5% 1206
3483	4822 051 30471	470Ω 5% 0.062W
3485	4822 051 30222	2.2kΩ 5% 0.062W
3486	4822 051 30222	2.2kΩ 5% 0.062W
3487	4822 051 30222	2.2kΩ 5% 0.062W
3488	4822 051 30222	2.2kΩ 5% 0.062W
3489	4822 051 30222	2.2kΩ 5% 0.062W
3490	4822 051 30102	1kΩ 5% 0.062W
3494	3198 031 14710	4 x 470Ω 5% 1206
3506	4822 051 30332	3.3kΩ 5% 0.062W
3507	4822 051 30472	4.7kΩ 5% 0.062W
3510	4822 051 30102	1kΩ 5% 0.062W
3511	4822 051 30222	2.2kΩ 5% 0.062W
3512	4822 051 30562	5.6kΩ 5% 0.063W 0603
3513	4822 051 30332	3.3kΩ 5% 0.062W
3514	4822 051 30472	4.7kΩ 5% 0.062W
3515	4822 117 12925	47kΩ 1% 0.063W 0603
3516	4822 117 12925	47kΩ 1% 0.063W 0603
3517	4822 051 30102	1kΩ 5% 0.062W
3518	4822 117 13632	100kΩ 1% 0603 0.62W
3530	4822 051 30101	100Ω 5% 0.062W
3531	4822 051 30101	100Ω 5% 0.062W
3532	4822 051 30101	100Ω 5% 0.062W
3533	4822 051 30103	10kΩ 5% 0.062W
3534	4822 051 30103	10kΩ 5% 0.062W
3535	4822 051 30103	10kΩ 5% 0.062W
3536	4822 051 30103	10kΩ 5% 0.062W
3537	4822 051 30103	10kΩ 5% 0.062W
3538	4822 051 30103	10kΩ 5% 0.062W
3539	4822 051 30103	10kΩ 5% 0.062W
3540	4822 051 30101	100Ω 5% 0.062W
3541	4822 051 30101	100Ω 5% 0.062W
3545	4822 051 30221	220Ω 5% 0.062W
3547	4822 051 30102	1kΩ 5% 0.062W
3548	4822 051 30102	1kΩ 5% 0.062W
3550	4822 051 30101	100Ω 5% 0.062W
3551	4822 051 30101	100Ω 5% 0.062W
3552	4822 051 30101	100Ω 5% 0.062W
3553	4822 051 30101	100Ω 5% 0.062W
3554	4822 051 30103	10kΩ 5% 0.062W
3557	4822 051 30101	100Ω 5% 0.062W
3558	4822 051 30101	100Ω 5% 0.062W
3559	4822 051 30101	100Ω 5% 0.062W
3560	4822 051 30101	100Ω 5% 0.062W
3562	4822 051 30103	10kΩ 5% 0.062W
3570	4822 051 30101	100Ω 5% 0.062W
3571	4822 051 30101	100Ω 5% 0.062W
3575	4822 051 30102	1kΩ 5% 0.062W
3580	4822 051 30472	4.7kΩ 5% 0.062W
3581	4822 051 30101	100Ω 5% 0.062W
3582	4822 051 30101	100Ω 5% 0.062W
3583	4822 051 30472	4.7kΩ 5% 0.062W
3590	4822 051 30332	3.3kΩ 5% 0.062W
3591	4822 051 30332	3.3kΩ 5% 0.062W
3592	4822 051 30332	3.3kΩ 5% 0.062W
3593	4822 051 30332	3.3kΩ 5% 0.062W
3600	4822 051 30332	3.3kΩ 5% 0.062W
3601	4822 051 30332	3.3kΩ 5% 0.062W
3602	4822 051 30101	100Ω 5% 0.062W
3603	4822 051 30101	100Ω 5% 0.062W
3604	4822 051 30101	100Ω 5% 0.062W
3605	4822 051 30101	100Ω 5% 0.062W
3606	4822 051 30101	100Ω 5% 0.062W
3607	4822 051 30101	100Ω 5% 0.062W
3608	4822 051 30101	100Ω 5% 0.062W
3609	4822 051 30101	100Ω 5% 0.062W
3610	4822 051 30479	47Ω 5% 0.062W
3615	4822 051 30101	100Ω 5% 0.062W
3620	4822 051 30103	10kΩ 5% 0.062W
3621	4822 051 30103	10kΩ 5% 0.062W
3622	4822 051 30479	47Ω 5% 0.062W
3623	4822 051 30102	1kΩ 5% 0.062W
3628	4822 051 30101	100Ω 5% 0.062W
3630	4822 051 30102	1kΩ 5% 0.062W
3631	4822 051 30102	1kΩ 5% 0.062W
3632	4822 051 30332	3.3kΩ 5% 0.062W
3633	4822 051 30472	4.7kΩ 5% 0.062W
3634	4822 051 30332	3.3kΩ 5% 0.062W
3635	4822 051 30103	10kΩ 5% 0.062W
3636	4822 051 30332	3.3kΩ 5% 0.062W
3640	4822 051 30222	2.2kΩ 5% 0.062W
3641	4822 051 30102	1kΩ 5% 0.062W
3653	4822 051 30102	1kΩ 5% 0.062W
3654	4822 051 30102	1kΩ 5% 0.062W
3655	4822 051 30102	1kΩ 5% 0.062W
3657	4822 051 30103	10kΩ 5% 0.062W
3658	4822 051 30103	10kΩ 5% 0.062W
3660	4822 051 30101	100Ω 5% 0.062W
3661	4822 051 30101	100Ω 5% 0.062W
3662	4822 051 30101	100Ω 5% 0.062W
3663	4822 051 30101	100Ω 5% 0.062W
3664	4822 051 30101	100Ω 5% 0.062W

3670	4822 051 30222	2.2kΩ 5% 0.062W
3673	4822 051 30103	10kΩ 5% 0.062W
3674	4822 051 30101	100Ω 5% 0.062W
3675	4822 051 30103	10kΩ 5% 0.062W
3676	4822 051 30101	100Ω 5% 0.062W
3677	4822 051 30101	100Ω 5% 0.062W
3678	4822 051 30102	1kΩ 5% 0.062W
3679	4822 051 30101	100Ω 5% 0.062W
3680	4822 051 30101	100Ω 5% 0.062W
3681	4822 051 30222	2.2kΩ 5% 0.062W
3682	4822 051 30471	470Ω 5% 0.062W
3684	4822 051 30101	100Ω 5% 0.062W
3685	4822 051 30222	2.2kΩ 5% 0.062W
3686	4822 051 30471	470Ω 5% 0.062W
3710	4822 051 30333	33kΩ 5% 0.062W
3711	4822 051 30102	1kΩ 5% 0.062W
3713	4822 051 30101	100Ω 5% 0.062W
3714	4822 051 30223	22kΩ 5% 0.062W
3716	4822 051 30153	15kΩ 5% 0.062W
3720	4822 051 30333	33kΩ 5% 0.062W
3721	4822 051 30102	1kΩ 5% 0.062W
3723	4822 051 30101	100Ω 5% 0.062W
3724	4822 051 30223	22kΩ 5% 0.062W
3726	4822 051 30153	15kΩ 5% 0.062W
3730	4822 051 30333	33kΩ 5% 0.062W
3731	4822 051 30331	330Ω 5% 0.062W
3740	4822 051 30333	33kΩ 5% 0.062W
3741	4822 051 30331	330Ω 5% 0.062W
3796	4822 051 30472	4.7kΩ 5% 0.062W
3797	4822 051 30472	4.7kΩ 5% 0.062W
3798	4822 051 30333	33kΩ 5% 0.062W
3800	4822 051 30331	330Ω 5% 0.062W
3801	4822 051 30331	330Ω 5% 0.062W
3802	4822 051 30333	33kΩ 5% 0.062W
3803	4822 117 13632	100kΩ 1% 0603 0.62W
3804	4822 051 30333	33kΩ 5% 0.062W
3805	4822 117 13632	100kΩ 1% 0603 0.62W
3806	4822 117 13632	100kΩ 1% 0603 0.62W
3807	4822 117 13632	100kΩ 1% 0603 0.62W
3808	4822 117 13632	100kΩ 1% 0603 0.62W
3810	4822 051 30472	4.7kΩ 5% 0.062W
3811	4822 051 30472	4.7kΩ 5% 0.062W
3812	4822 051 30101	100Ω 5% 0.062W
3813	4822 051 30101	100Ω 5% 0.062W
3814	4822 051 30333	33kΩ 5% 0.062W
3815	4822 051 30101	100Ω 5% 0.062W
3816	4822 051 30101	100Ω 5% 0.062W
3820	4822 051 30333	33kΩ 5% 0.062W
3821	4822 051 30103	10kΩ 5% 0.062W
3822	4822 051 30333	33kΩ 5% 0.062W
3840	4822 051 30223	22kΩ 5% 0.062W
3841	4822 051 30223	22kΩ 5% 0.062W
3843	4822 051 30393	39kΩ 5% 0.062W
3844	4822 051 30101	100Ω 5% 0.062W
3845	4822 051 30101	100Ω 5% 0.062W
3846	4822 051 30223	22kΩ 5% 0.062W
3847	4822 051 30393	39kΩ 5% 0.062W
3848	4822 051 30393	39kΩ 5% 0.062W
3849	4822 051 30101	100Ω 5% 0.062W
3850	4822 051 30223	22kΩ 5% 0.062W
3851	4822 051 30223	22kΩ 5% 0.062W
3853	4822 051 30393	39kΩ 5% 0.062W
3854	4822 051 30101	100Ω 5% 0.062W
3855	4822 051 30101	100Ω 5% 0.062W
3856	4822 051 30223	22kΩ 5% 0.062W
3857	4822 051 30393	39kΩ 5% 0.062W
3858	4822 051 30393	39kΩ 5% 0.062W
3859	4822 051 30101	100Ω 5% 0.062W
3860	4822 051 30332	3.3kΩ 5% 0.062W
3861	4822 051 30223	22kΩ 5% 0.062W
3862	4822 051 30273	27kΩ 5% 0.062W
3863	4822 051 30332	3.3kΩ 5% 0.062W
3864	4822 051 30223	22kΩ 5% 0.062W
3865	4822 051 30273	27kΩ 5% 0.062W
3866	4822 051 30101	100Ω 5% 0.062W
3867	4822 051 30101	100Ω 5% 0.062W
3870	4822 051 30101	100Ω 5% 0.062W
3879	4822 117 12925	47kΩ 1% 0.063W 0603
3880	4822 051 30471	470Ω 5% 0.062W
3900	4822 051 30331	330Ω 5% 0.062W
3900	4822 051 30472	4.7kΩ 5% 0.062W
3900	4822 051 30759	75Ω 5% 0.062W
3901	4822 051 30331	330Ω 5% 0.062W
3901	4822 051 30333	33kΩ 5% 0.062W
3901	4822 051 30759	75Ω 5% 0.062W
3902	4822 051 30331	330Ω 5% 0.062W
3902	4822 051 30759	75Ω 5% 0.062W
3903	4822 051 30101	100Ω 5% 0.062W
3904	4822 051 30103	10kΩ 5% 0.062W
3905	4822 051 30103	10kΩ 5% 0.062W
3906	4822 051 30101	100Ω 5% 0.062W
3906	4822 051 30103	10kΩ 5% 0.062W
3907	4822 051 30101	100Ω 5% 0.062W
3907	4822 051 30103	10kΩ 5% 0.062W
3908	4822 051 30101	100Ω 5% 0.062W
3908	4822 051 30103	10kΩ 5% 0.062W
3909	4822 051 30101	100Ω 5% 0.062W
3910	4822 051 30102	1kΩ 5% 0.062W
3910	4822 051 30103	10kΩ 5% 0.062W
3911	4822 051 30101	100Ω 5% 0.062W
3911	4822 117 12925	47kΩ 1% 0.063W 0603
3912	4822 051 30102	1kΩ 5% 0.062W
3912	4822 051 30472	4.7kΩ 5% 0.062W
3913	4822 051 30101	100Ω 5% 0.062W
3914	4822 051 30102	1kΩ 5% 0.062W
3915	4822 051 30101	100Ω 5% 0.062W
3916	4822 051 30101	100Ω 5% 0.062W
3917	4822 051 30103	10kΩ 5% 0.062W
3918	4822 051 30103	10kΩ 5% 0.062W
3919	4822 051 30101	100Ω 5% 0.062W
3920	4822 051 30101	100Ω 5% 0.062W
3921	4822 051 30103	10kΩ 5% 0.062W
3922	4822 051 30101	100Ω 5% 0.062W
3923	4822 051 30102	1kΩ 5% 0.062W
3924	4822 051 30101	100Ω 5% 0.062W
3925	4822 051 30102	1kΩ 5% 0.062W
3926	4822 051 30101	100Ω 5% 0.062W
3927	4822 051 30472	4.7kΩ 5% 0.062W
3928	4822 051 30472	4.7kΩ 5% 0.062W
3929	4822 051 30472	4.7kΩ 5% 0.062W
3930	4822 051 30472	4.7kΩ 5% 0.062W
3934	4822 051 30103	10kΩ 5% 0.062W
3935	4822 051 30333	33kΩ 5% 0.062W
3999	4822 051 30152	1.5kΩ 5% 0.062W
4006	4822 051 30008	Jumper 0603
4007	4822 051 30008	Jumper 0603
4009	4822 051 30008	Jumper 0603
4010	4822 051 30008	Jumper 0603
4146	4822 051 30008	Jumper 0603
4152	4822 051 30008	Jumper 0603
4158	4822 051 30008	Jumper 0603
4200	4822 051 30008	Jumper 0603
4250	4822 051 30008	Jumper 0603
4315	4822 051 30008	Jumper 0603
4325	4822 051 30008	Jumper 0603
4335	4822 051 30008	Jumper 0603
4381	4822 051 30008	Jumper 0603
4431	4822 051 30008	Jumper 0603
4500	4822 051 30008	Jumper 0603
4505	4822 051 30008	Jumper 0603
4506	4822 051 30008	Jumper 0603
4572	4822 051 30008	Jumper 0603
4574	4822 051 30008	Jumper 0603
4581	4822 051 30008	Jumper 0603
4591	4822 051 30008	Jumper 0603
4659	4822 051 30008	Jumper 0603
4794	4822 051 30008	Jumper 0603
4797	4822 051 30008	Jumper 0603
4800	4822 051 30008	Jumper 0603
4801	4822 051 30008	Jumper 0603
4810	4822 051 30008	Jumper 0603
4811	4822 051 30008	Jumper 0603
4834	4822 051 30008	Jumper 0603
4871	4822 051 30008	Jumper 0603
4874	4822 051 30008	Jumper 0603
4875	4822 051 30008	Jumper 0603
4884	4822 051 30008	Jumper 0603
4894	4822 051 30008	Jumper 0603

5008	4822 157 11074	Bead 600Ω at 100MHz
5140	4822 157 11074	Bead 600Ω at 100MHz
5164	4822 157 11074	Bead 600Ω at 100MHz
5196	4822 157 11074	Bead 600Ω at 100MHz
5197	4822 157 11074	Bead 600Ω at 100MHz
5198	4822 157 11074	Bead 600Ω at 100MHz
5199	4822 157 11074	Bead 600Ω at 100MHz
5300	4822 157 11074	Bead 600Ω at 100MHz
5302	4822 157 11074	Bead 600Ω at 100MHz
5352	4822 157 11074	Bead 600Ω at 100MHz
5520	4822 157 11074	Bead 600Ω at 100MHz
5521	4822 157 11074	Bead 600Ω at 100MHz
5522	4822 157 11074	Bead 600Ω at 100MHz
5523	4822 157 11074	Bead 600Ω at 100MHz
5524	4822 157 11074	Bead 600Ω at 100MHz
5530	4822 157 11074	Bead 600Ω at 100MHz
5541	4822 157 11074	Bead 600Ω at 100MHz
5570	3198 018 51090	10µH 10% 0603
5572	4822 157 11074	Bead 600Ω at 100MHz
5574	4822 157 11074	Bead 600Ω at 100MHz
5628	4822 157 11074	Bead 600Ω at 100MHz
5630	4822 157 11074	Bead 600Ω at 100MHz
5642	4822 157 11074	Bead 600Ω at 100MHz
5643	4822 157 11074	Bead 600Ω at 100MHz
5644	4822 157 11074	Bead 600Ω at 100MHz
5645	4822 157 11074	Bead 600Ω at 100MHz
5646	4822 157 11074	Bead 600Ω at 100MHz
5647	4822 157 11074	Bead 600Ω at 100MHz
5648	4822 157 11074	Bead 600Ω at 100MHz
5649	4822 157 11074	Bead 600Ω at 100MHz
5670	4822 157 11074	Bead 600Ω at 100MHz
5672	4822 157 11074	Bead 600Ω at 100MHz
5673	4822 157 11074	Bead 600Ω at 100MHz
5796	4822 157 11074	Bead 600Ω at 100MHz
5810	4822 157 11074	Bead 600Ω at 100MHz
5820	4822 157 11074	Bead 600Ω at 100MHz
5822	4822 157 11074	Bead 600Ω at 100MHz
5834	4822 157 11074	Bead 600Ω at 100MHz
5870	4822 157 11074	Bead 600Ω at 100MHz
5900	2422 549 43062	Bead 600Ω at 100MHz
5900	4822 157 11074	Bead 600Ω at 100MHz
5901	2422 549 43062	Bead 600Ω at 100MHz
5901	4822 157 11074	Bead 600Ω at 100MHz

6166	9322 149 96685	BZX384-C2V4
6302	4822 130 10654	BAT254
6310	4822 130 10654	BAT254
6311	4822 130 10654	BAT254
6354	9322 149 10685	BZM55-C33
6355	9322 149 10685	BZM55-C33
6356	9322 149 10685	BZM55-C33
6357	9322 149 10685	BZM55-C33
6365	9322 129 38685	BZM55-C6V8
6366	4822 130 83757	BAS216
6378	4822 130 83757	BAS216
6379	4822 130 83757	BAS216
6380	4822 130 11422	PLVA2650A
6388	4822 130 11422	PLVA2650A
6393	4822 130 11422	PLVA2650A
6399	4822 130 11422	PLVA2650A
6507	4822 130 83757	BAS216
6630	4822 130 10654	BAT254
6710	9322 149 10685	BZM55-C33
6711	9322 149 10685	BZM55-C33
6720	9322 149 10685	BZM55-C33
6721	9322 149 10685	BZM55-C33
6730	9322 149 10685	BZM55-C33
6731	9322 149 10685	BZM55-C33
6740	9322 149 10685	BZM55-C33
6741	9322 149 10685	BZM55-C33
6802	9340 260 20115	BAW56W
6805	9340 260 20115	BAW56W
6807	9340 260 20115	BAW56W
6820	4822 130 10654	BAT254
6900	9322 149 10685	BZM55-C33
6901	9322 149 10685	BZM55-C33
6902	9322 149 10685	BZM55-C33
6903	9322 149 10685	BZM55-C33
6904	4822 130 10654	BAT254
6905	4822 130 10654	BAT254
6906	9322 149 10685	BZM55-C33
6907	9322 149 10685	BZM55-C33
6908	9322 149 10685	BZM55-C33
6909	9322 149 10685	BZM55-C33
6910	9322 149 10685	BZM55-C33
6911	9322 149 10685	BZM55-C33
6912	9322 149 10685	BZM55-C33
6913	9322 149 10685	BZM55-C33
6914	9322 149 10685	BZM55-C33
6915	9322 149 10685	BZM55-C33
6916	4822 130 10654	BAT254
6918	9322 149 10685	BZM55-C33
6920	9322 149 10685	BZM55-C33
6921	9322 149 10685	BZM55-C33
6922	9322 149 10685	BZM55-C33
6923	9322 149 10685	BZM55-C33
6925	9322 149 10685	BZM55-C33

7007	5322 209 11598	PC74HCT4538T
7060	3198 010 42310	BC847BW
7065	3198 010 42310	BC847BW
7145	3198 010 42310	BC847BW
7148	3198 010 42310	BC847BW
7151	3198 010 42310	BC847BW
7154	3198 010 42310	BC847BW
7157	3198 010 42310	BC847BW
7160	3198 010 42310	BC847BW
7165	3198 010 42310	BC847BW
7170	9322 160 96671	AD9887KS-140
7175	4822 209 17239	LD1117DT33C
7303	4822 209 30212	PC74HCT125T
7308	3198 010 42310	BC847BW
7310	3198 010 42310	BC847BW
7311	9322 145 66668	TSH93ID

7315	3198 010 42310	BC847BW
7316	3198 010 42310	BC847BW
7318	3198 010 42310	BC847BW
7320	3198 010 42310	BC847BW
7321	3198 010 42310	BC847BW
7322	3198 010 42310	BC847BW
7323	3198 010 42310	BC847BW
7325	3198 010 42310	BC847BW
7326	3198 010 42310	BC847BW
7328	3198 010 42310	BC847BW
7340	4822 209 15765	74HC4052D
7341	3198 010 42310	BC847BW
7343	3198 010 42310	BC847BW
7352	9322 160 17668	ST202ECD
7360	3198 010 42310	BC847BW
7364	3198 010 42310	BC847BW
7370	4822 209 71585	74HCT4538N
7383	9352 684 81557	SAA5801H/015
7430	9322 156 81668	M24C32-WMN6TNKSA
7435	3198 010 42310	BC847BW
7500	9322 157 20668	MSM51V18165F-60J
7515	3198 010 42310	BC847BW
7516	5322 130 42756	BC857C
7517	9322 158 67685	ADM810TART
7530	4822 209 90188	PCF8591T
7540	5322 209 33172	PCF8574AT
7563	3198 010 42310	BC847BW
7570	9322 137 99668	FS6377-01
7574	9352 317 00118	74LVC125AD
7580	9322 156 81668	M24C32-WMN6TNKSA
7605	9322 158 73671	PW164-10R
7628	9322 164 75682	CY62126BVLL-70ZI
7631	3198 010 42310	BC847BW
7640	4822 209 16406	TL431ACD
7641	9322 157 95668	STD16NE06L
7655	9322 141 53682	EPC2LC20
7670	9322 159 45668	DS90C385MTD
7675	9340 547 13215	BSH103
7676	9340 547 13215	BSH103
7714	4822 209 30095	LM833D
7801	3198 010 42310	BC847BW
7802	3198 010 42310	BC847BW
7803	5322 130 42756	BC857C
7805	9340 547 13215	BSH103
7806	9340 547 13215	BSH103
7807	9340 547 13215	BSH103
7808	9340 547 13215	BSH103
7812	9322 167 63668	MSP3415G-QG-B8
7841	4822 209 30095	LM833D
7851	4822 209 30095	LM833D
7861	4822 209 30095	LM833D
7870	9322 167 76668	TC74HC590AF
7874	9322 167 76668	TC74HC590AF
7879	3198 010 42310	BC847BW
7880	9322 153 66668	CY7C199-15ZC
7881	9351 869 80118	74HCT573DB
7882	9351 869 80118	74HCT573DB
7900	5322 209 71568	PC74HCT14T
7904	9322 046 99668	ST24FC21M6
7907	9322 046 99668	ST24FC21M6
7910	4822 209 30212	PC74HCT125T
7915	3198 010 42310	BC847BW
7915	9340 217 70115	BC847BW

11. Revision List

First release